



FRIDAY, AUGUST 1.

**Nut-Locks on the Houston & Texas Central Railway.**

Mr. M. G. Howe, Engineer and Superintendent of the Southern and Western divisions of the Houston & Texas Central Railroad, in responding to our circular on nut-locks, even and broken joints, etc., writes:

"We are generally using wooden washers after having tried many of the most approved forms with but indifferent success.

"It is well understood that a perfect nut-lock is still a desideratum, and I take occasion in this connection to send you a sketch and sample of an elastic steel washer which has been designed here, and tested on this road about nine months, and thus far, found to 'fill the bill' perfectly. It is, in all respects, the best I have seen.

"The wear of roughness and scale from the bearing surfaces of rails, fish-plates and, frequently, ill-fitting bolt heads, is in a short time very considerable in ordinary new joints, and is continuous, to a greater or less extent, afterward, making it necessary to frequently tighten up loose bolts even when the nuts have not changed in their positions.

"The great stiffness and range of spring motion of the elastic steel washer take up this wear and greatly lessen it by maintaining a constant tensile strain on the bolts, which

Livingston (further south on the Louisville & Nashville) by a short and direct line, and this has now been accomplished. When the extension was first determined upon, neither the Louisville & Nashville road south to the Tennessee line, which was to be reached by an extension of its Knoxville Branch, nor the East Tennessee north to the state line, where the connection between the two systems was to be made, had been built, but these have long since been completed, giving to the East Tennessee road an outlet to Louisville, and to the Louisville & Nashville an outlet to ports on the Atlantic Coast in North and South Carolina; the opening of the Kentucky Central now also gives the East Tennessee a very short and eligible route to Cincinnati, in addition to that to Louisville, while to the Kentucky Central itself there is opened direct communication with the whole South and Southeast.

It is to be noted that a piece of road hardly less essential than any of these had previously been constructed. We refer to the junction of the Western North Carolina with a branch of the East Tennessee. The mountains of Western North Carolina had never been pierced before, and acted as a barrier to all commerce between the West and the states of the South Atlantic seaboard. North and South Carolina particularly were most effectually shut out, for to reach a point like Louisville, for instance, one had to pass north through Virginia or south through Georgia. But with the extension of the Western North Carolina west to meet the East Tennessee line all this was changed, and now these states are as favorably supplied with railroad facilities as any other.

In all the extensions that have been going on in the South Cincinnati would seem to have been the greatest gainer. Indeed, it is almost surprising to note the change that that place has undergone as respects its railroad connections. Only a few years ago it was almost completely isolated from Southern points. Its connections on the north were good enough, but as regards intercourse with the South there was only one great railroad system open to it, and that was the Louisville & Nashville through Louisville. Cincinnati felt the want, too, of railroad facilities in order to improve her position, and it was this that led her to undertake the

Vicksburg & Meridian—to all points on the Atlantic coast. The East Tennessee line, parallel to the Western & Atlantic, has already been alluded to, but that line, in becoming part of the Macon & Brunswick, greatly improved the value of the latter and increased the prospects of Brunswick for a larger business. Then we should also mention the building of the Pensacola & Atlantic from Pensacola to Chattahoochee, affording a nearly direct line to Jacksonville and bringing the Florida system of roads in better connection with the Gulf ports. Other instances of the construction of less important pieces of new road might be cited, but enough has been said to show that the South has made very decided progress in recent years in extending, enlarging and perfecting her railroad mileage, and may now be said to have a pretty comprehensive system for the development of her resources.—*Commercial and Financial Chronicle.*

**Contributions.****The Gibbon Boltless Rail-Joint.**

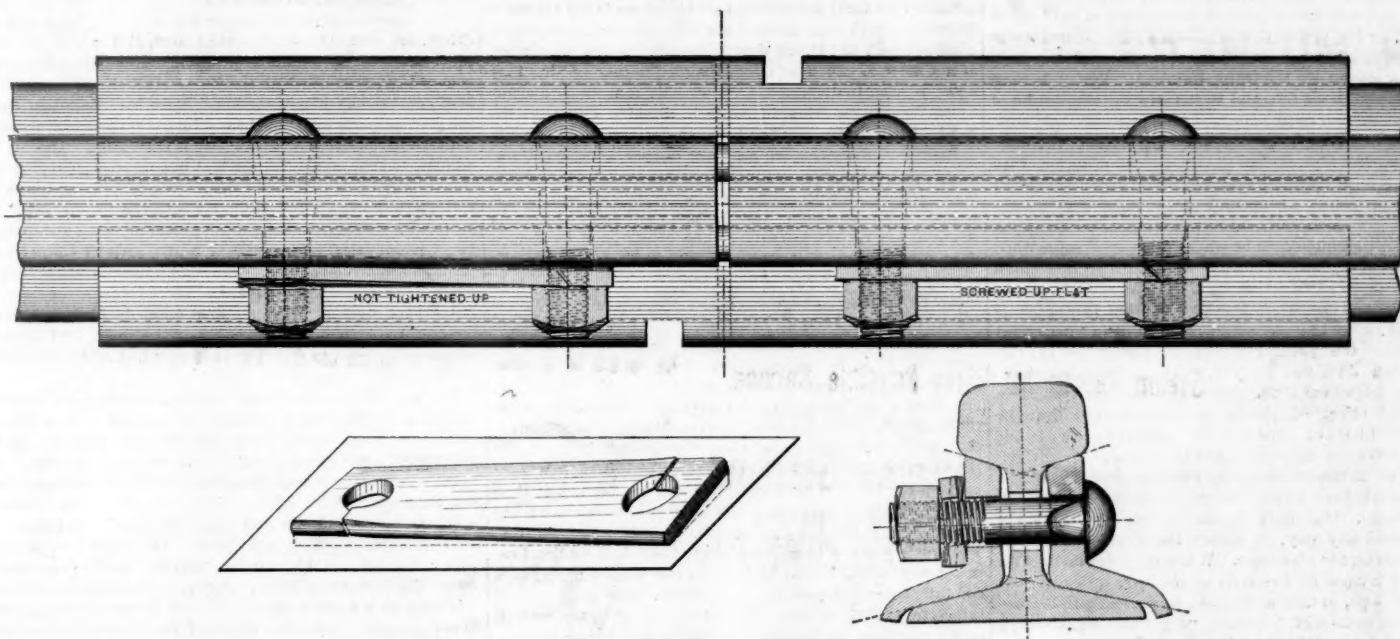
ALBANY, N. Y., July 20, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have just returned from Altoona, where (through the kindness of the officials of the Pennsylvania Railroad Co., for which my sincere thanks are here expressed), the Gibbon boltless rail-joint has been laid in a portion of the track where all freight cars going west or coming east are received. Of the number of cars passing no estimate can be accurately given, the track being constantly engaged from morning to night and from night to morning.

It is safe, however, to estimate that 5,000 cars and 500 engines pass to and fro over this portion of the track every 24 hours at various speeds up to 15 miles an hour.

It will perhaps interest your readers to know the time it



NUT-LOCK, HOUSTON &amp; TEXAS CENTRAL RAILROAD.

also secures a permanently firm joint. The projecting lip adjacent to the bolt holes catches under the nut at any part of a turn and effectually prevents its turning back.

"The device has recently been patented. I will give further information if desired."

The nut-lock referred to above is shown in the accompanying illustration.

**Recent Railroad Development in the South.**

In no section of the country have there been built so many important pieces of road—so many essential links in through systems that remained incomplete year after year—within recent periods as in the South. We referred last week to the completion of the Vicksburg, Shreveport & Pacific road to a connection with the Texas & Pacific, and the previous completion of the New Orleans & Northeastern to New Orleans, opening up to a vast section of country new and direct outlets to Northern Texas and the whole Southwest, and greatly facilitating intercourse between different parts of the South. This week we have the announcement that the Livingston Extension of the Kentucky Central, from Argenta, near Richmond, Kentucky, to Livingston on the Louisville & Nashville in the same state, will shortly be in full running order, thus affording a new route to Cincinnati, which cannot fail to be of great advantage not only to that city but to the different systems of roads chiefly concerned—more particularly the Kentucky Central itself, and the East Tennessee, Virginia & Georgia.

To understand the importance of this piece of road, it should be remembered that prior to last year the Kentucky Central merely formed a line from Covington to Paris and Lexington, with a branch to Maysville. Lexington was a point of junction with the Cincinnati Southern, and the Kentucky Central, of course, might have availed itself of that company's line for points south of Lexington; but as the Central, though small, was really a parallel and competing line, that course was neither feasible nor practicable. So being left without any important connections, the company exercised its right to extend its lines south, and determined upon building the 70 miles or so that would carry it to Livingston from Paris, the idea being to connect at Livingston with the Louisville & Nashville and the East Tennessee systems. It is this piece of 70 miles that has now been finally completed. The upper portion of it, from Paris to Richmond, was opened over a year ago, making at Richmond connection with the Richmond Branch (34 miles, from Richmond to Stanford) of the Louisville & Nashville, which had in the meantime been leased; but the main object of the extension was to reach

construction of the Cincinnati Southern. It was supposed that once Chattanooga was reached railroad connections in abundance would be found, and the hope has not been disappointed. But the Cincinnati Southern has become merely a link in a great through route beginning at Cincinnati and which was extended to New Orleans last autumn by the completion of the New Orleans & Northeastern, and has now by the completion of the Vicksburg, Shreveport & Pacific been extended into Texas. That, however, is not all. The Kentucky Central and the East Tennessee supply it with a second line, the latter not only running parallel to the Cincinnati Southern all the way to Meridian, Miss., but furnishing a line direct to the Atlantic Coast through Georgia, the Western & Atlantic, which only a short time ago afforded the only entrance into Georgia from the north, having been duplicated by the East Tennessee management. At the same time the construction of the Western North Carolina road (already alluded to) opened to Cincinnati all the ports in North and South Carolina, not one of which was accessible before. Further, the building of the Elizabethtown, Lexington & Big Sandy road (to a connection with the Chesapeake & Ohio) has furnished good outlets to Virginia ports—Norfolk, Richmond and Newport News—from which also Cincinnati has been previously excluded. Washington, too, has been made easier of access by that route. Moreover, by the completion of the Memphis, Paducah & Northern, and its union with the Elizabethtown & Paducah (now the Chesapeake, Ohio & Southwestern system), Cincinnati has been supplied with a competing line to the Louisville & Nashville to Memphis, and from Memphis a road is now being constructed in the same interest along the east bank of the Mississippi, whose ultimate destination is in New Orleans, which, when reached, will give Cincinnati four distinct routes to the Crescent City—namely, that of the Cincinnati Southern, that of the East Tennessee, that of the Louisville & Nashville and that of the Chesapeake & Ohio—against but one only a few years ago.

But while it is easy to see that Cincinnati has gained very largely from the extensions of Southern systems, it is also clear that other points—in fact the whole South—has gained no less largely, not only through the completion of the lines mentioned above, but also through the construction of other new lines and links. Among these latter there is, for instance, the Shenandoah Valley road (entirely new) running from Roanoke, Va., to Hagerstown, Md., where it connects with the Cumberland Valley road and affords a second outlet to the North, in addition to that of the Virginia Midland. Then there is the Georgia Pacific, in operation from Atlanta to Birmingham. This not only opens the coal and iron fields of Alabama to the Richmond & Danville, but will eventually furnish another route to the Mississippi, midway between the Memphis & Charleston and the

would require to prepare and lay this joint, as in case of broken rail in track, or similar emergency.

I found that two men with cross-cut saw and gouge, box the tie in not less than 7 minutes and not more than 10 minutes. Two men cut the rail-heads off with cutter and maul, each cut varying in length of time from several causes, such as frequent movement of trains, hard and fine textured rail (Cambria make), soft cutters, and the temperature, which was very hot.

In early morning, when the rails were cool, the cut was made in 23 minutes, and later in the day it took an hour to make a cut, on account of delays from trains, etc., but it is safe to say that, with clear track, good cutters and willing workers, the tie could be boxed, rails cut and connection made in 30 minutes.

The track (with the Gibbon joint) was laid under the directions of Mr. R. R. Robb, supervisor, who made joint connections ready for spikers in less than one minute, which is perhaps quicker than nuts could be unscrewed for a fish-plate joint.

The prevention of loose bolts and of spreading and creeping of track seems to be conceded. As to the other important claims which we have for this joint, such as prevention of low joints, etc., time alone can again demonstrate as to them what has already been demonstrated herein.

T. H. GIBBON.

**The Ventilation of Passenger Cars.**

TO THE EDITOR OF THE RAILROAD GAZETTE:

I am sorry that you could not unequivocally indorse my general views as to car ventilation, expressed in my communication on the new New Haven cars, published in your issue of July 25. I desire to take issue with the opinions stated in your editorial comment of same date. It appears to me that all attempts to introduce air in the fronts of the cars, or in fact all ways used to secure forced ventilation from the motion of the cars are unsatisfactory, because they give no relief when the train is at rest. As mechanical ventilation, continued both when cars are at rest and in motion, is too expensive to be practicable, I conclude



that, everything considered, the best average results, winter and summer, are attained by simply making large openings in the clear-story, without induced current deflectors, and protecting same by wire gauze. This system requires in winter distributed heat as produced by the Baker heaters, but it prevents that invasion of cinders in summer and cold drafts in winter, which always occurs with any system of exhaust ventilation.

Any restriction as to raising the windows makes the air stifling when cars are standing in depots on sultry days, and safety should be secured, if at all, by cross bars rather than by cutting off the air supply. When windows are open and there are large openings above, without exhaust ventilation and no adjustable windows in front and rear, the air in the car becomes the same as it is outside—dusty, of course, if the road is dusty and there is no wind; but the dust is not driven into one's face and eyes, and with the least bit of lateral wind the pure air enters the car and the dust and cinders go freely to leeward. Compare the comfort of a Pullman car with no forced ventilation, with that in cars provided with suction ventilators which cause the cinders to strike the face so as to sting, and I think the opinion will become more general that a car must be ventilated in the same manner as a house; without draft except from the winds, using plenty of large openings. For cars the openings should be covered with wire gauze, but no induced current, deflectors or other suction devices are permissible.

CHARLES E. EMERY.

NEW YORK, July 30, 1884.

NEW YORK, July 28, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with much interest your article in the issue of 25th inst., on the ventilation of passenger cars, called forth by Mr. Emery's letter in reference to the cars of the New York, New Haven & Hartford Railroad. You put most tersely the conditions essential to the proper ventilation of cars in "the current must be diffused, not concentrated; must be warmed in winter before it reaches the passenger; must be free from dust and cinders;" but I cannot agree with you in, "all these desirable features would appear to be attained by providing an opening with about 100 square inches area over each of the end windows next to the stoves so that the air admitted can be warmed before it is breathed by the passenger; the air should be admitted through a wire gauze screen in the overhanging platform roof so as to shut out dust and cinders." It is possible that this arrangement would secure that the air should be a little warmed before reaching the passenger, but it would be heavily charged with dust and cinders. The present construction of the ends of car roofs, inclining downward as they do, has the effect of producing a downward draught from the line of the roof, carrying with it all the cinders from the engine, and these cinders in a whirlpool circle about the end of the car over the platform and in front of the windows which you suggest should be provided with openings. One only needs to take a ride on the Elevated road any day, to notice the shower of cinders coming down on the platforms. When roofs are made with an upward incline at the ends of the car, instead of the downward slope, so that a draught upwards shall be produced by the motion of the train, very likely air tolerably free from cinders might be taken in at the end windows; however, anywhere about a railway train in motion the air is more or less charged with dust and cinders, and should never be taken into a car until thoroughly filtered. The wire screens which you speak of are practically of no value anywhere. If fine enough to exclude anything but the largest cinders, they will practically exclude the air, and this not in proportion to the meshes of the solid threads, because the air striking a wire gauze is arrested so as to form a sort of cushion on the surface of the gauze against further air, and though one-half of the surface should be open, not a quarter of the volume of air represented by the area will pass through it; and even when the meshes are fine, the small quantity of air admitted will still be charged with the almost impalpable but exceedingly disagreeable dust incident to a railway train in motion. The only remedy is to filter the air by some practical and cheap process. A spray or water bath produced by mechanical means is not feasible. For some years, in connection with my Boudoir cars in Europe and with experiments on refrigerator cars for carrying meat, I have attentively studied the whole subject of railway car ventilation. Taking my cue from nature's provision in the human nose of a mass of fine hairs kept moist by the natural secretions, and serving to filter perfectly the air entering the lungs through the proper breathing channel—the nose—I have adopted a "nose" on my cars through which all the air entering the car is obliged to pass. This consists of a mass of "excelsior" (fine wood shavings like hair) held loosely by spindles of wire, and kept moist by the melting of ice over it. The air is taken in by a large double-mouthed funnel on the roof of the car provided with an automatic valve enabling it to take in air in whichever direction the car may be running. It is easy to understand the force of current taken in by this funnel in a train traveling 30 or 40 miles an hour, when one recalls that in a steamship going at the rate of 15 miles an hour, the great furnace-room is kept ventilated by one or two such funnels. The air is carried from the funnel by a flue discharging directly on the surface of a large pan of water, the product of the melting ice. The heavy cinders are deposited in this water, and off from its surface the air is obliged to escape through the mass of wet excelsior, the effect being, as is demonstrated daily in

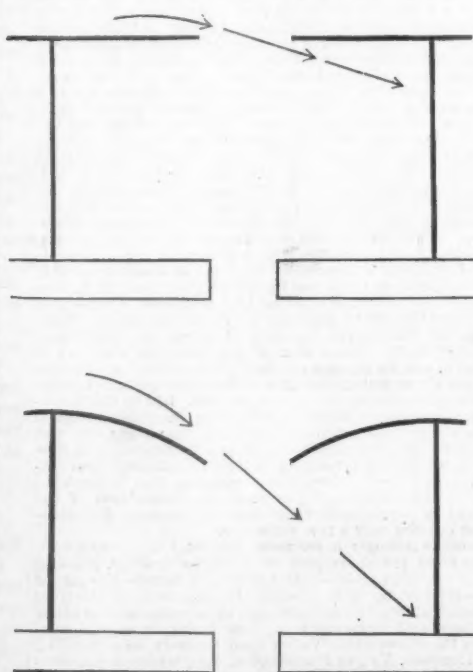
several cars I have now in use in this country, to take up every particle of dust or cinder, leaving the air perfectly clean, and freshened by its contact with the ice-water. From this the air enters the heater-room, which is a close chamber. In winter it surrounds the stove, taking up all the surplus heat which, with the heaters as ordinarily used, is given off to the great discomfort of passengers at that end of the car, and with a loss often felt by too little heat at the far end of the car. The air is thus thoroughly warmed in the heater-room, from which it is taken the whole length of the car by a flue near the floor, provided with registers at frequent intervals, giving throughout the car a uniform inflow of clean warmed air. In summer a large tank, through and over which the air must pass after permeating the excelsior, is filled with blocks of ice, and the air is cooled before admission to the air chamber formed by the heater-room, and is then conducted along the flue, and given off cleaned and cooled, so that the temperature in the car on the hottest night will be about 70 degrees. As at present used at 30 miles an hour, the funnel takes in and the filter cleanses sufficient air to supply an entire change of all the air in the car every two minutes. This in-take of air is supplemented by a large number of exhaust ventilators in the roof of the car, which, while not permitting the entry of a particle of air, draw off all the foul and used air in the car at the same rate that the funnel takes in fresh air.

I use an arched or dome formed roof instead of the old-fashioned clear-story, which was a primitive device to get ventilation, and which has been adhered to, though faulty in principles of construction, and a great element of weakness in the cars, for more than a quarter of a century, while giving the worst possible ventilation to the cars. Various devices in the construction of its windows have been tried but none of them are of any practical value. If made to draw off air there has been no provision made for taking in fresh air except the raising of the side windows, bringing in clouds of dust and strong drafts directly on the passenger. If not made as exhausters, but designed to take in air, they equally bring in dust, and if the weather is at a low temperature the cold air brought in falls directly down on the heads of passengers, producing death-dealing draughts. It matters but little whether they are hinged horizontally, as suggested by Mr. Emery, or hinged to open fore and aft; whether covered with gauze or not, the whole principle is wrong and inefficient. The arched roof gives enormous strength to a car while enabling the constructor to reduce the top weight one-half, and is equally well adapted to the setting of efficient exhaust ventilators.

Mr. Emery rightly says that it is evident that the New York & New Haven Railroad Co. has intended in their new cars to give to passengers the greatest possible comfort. If it has failed it has been simply a mistake in construction, and not a want of good intention. It has shown its disposition to give the traveling public the greatest possible luxuries, and especially in this matter of ventilation, by the promptness with which it tried my Boudoir cars and ventilation system. These cars, now running on the 10:30 p. m. train between New York and Boston, perfectly demonstrate the feasibility of securing the conditions you lay down as essential to good car ventilation. Without a window being open or the least dust coming into the cars, you will find at all times of the hottest night, in a car full of people a cool, sweet, fresh air. The subject is so interesting to the railway interests of the country, as well as the traveling public, that I should be very happy to have you make a personal test of the claims I lay to having thoroughly solved the car ventilation problem.

W. D. MANN.

[We can hardly agree with Captain Mann as to the effect of the form of platform roof on the path of



Platform Roof and Sparks.

sparks and cinders. The annexed diagrams show the relative protection given by a high or straight and a

low or curved platform. We have referred to the matter more fully in another column.—EDITOR RAILROAD GAZETTE.]

#### Steam Derrick Car.

We illustrate herewith a steam derrick or wrecking car, constructed by the Industrial Works, Bay City, Mich. Similar cranes are in use on the Michigan Central, the Canada Southern, the Atchison, Topeka & Santa Fe, and the Chicago & Western Indiana railroads.

The frame of the car is constructed entirely of white oak, and consists of 18 longitudinal timbers  $5\frac{1}{2}$  in.  $\times$  14 in., spaced  $\frac{1}{2}$  in. apart, and connected by end sills. The frame is covered with 2-in. oak planking, making a solid body 16 in. thick. Transverse timbers of oak 6 in.  $\times$  14 in. are bolted on the sills, passing underneath them. The car is secured by  $1\frac{1}{2}$ -in. tie-rods running from end to end, and  $1\frac{1}{2}$  in. through bolts, and is protected by corner plates. The draw-bars are extra heavy and of special pattern designed for the car.

The truck is of the ordinary tender type, with side bearings, and 12 ton elliptic springs. The axles are  $5\frac{1}{2}$  in. diameter, with 7 in. journal bearings. The weight of the forward part of the car is distributed over a greater track surface by an equalizer. Two heavy trucks similar to those under the rear end of the car are used. Four heavy forgings resting upon the springs support the ends of two boxed I-beams. Upon the centre of these beams are ball bearings, upon which rest concave wrought-iron plates. Through these pass the bolts from which the body of the car is suspended. Two elliptical pockets bolted to the transom beam allow lateral motion to the connected trucks, so that a curve of small radius may be traversed.

Two cast-iron plates, the upper flat, and the lower cylindrical, are securely bolted to the frame, and receive the jib post, and securely hold it in position. Encircling this post is a casting, around which the jib is riveted. This casting is of great strength, and the lower part is so enlarged that the jib—supported by four heavy forged studs—may assume a horizontal position when the car is traveling. The jib is constructed throughout of the best flange steel, varying in thickness from  $\frac{3}{4}$  in. around the casting to  $\frac{1}{2}$  in. at the end. Its section shows a form peculiarly adapted to the work it performs. It is gradually tapering with a section showing two semi-elliptical plates with a centre plate or rib passing through the principal axis. These plates are inverted at the upper and lower edges, and where the two come together a lap of 8 in. is given. This combination of steel and cast-iron forms a jib of great strength. From the lower end of this jib radiate plates, to which are securely fastened a rack, by which the jib is slewed.

The power for lifting loads, slewing, hoisting, and lowering the jib is given by a pair of engines with 9 in.  $\times$  12 in. cylinders. These engines are durable and compact, provided with a reversing link motion, and specially adapted to the work. The brass engine pinion communicates motion to a shaft on which are keyed two rope spools, the smaller of which serves to lower and raise the jib. The larger is used for rapidly lifting light loads. This shaft is provided with a friction drum which prevents any unnecessary and severe shocks to the gearing. Motion is communicated from this shaft to a counter shaft, and this in turn gives motion to another rope spool and a pair of bevel wheels of equal diameter. The spool winds a  $2\frac{3}{4}$ -in. rope, and performs the heaviest work of the crane. A clutch sliding on a feather between the two bevels, which are loose on the shaft, gives motion to gearing which slews the crane in either direction without reversing the engine.

Steam is supplied by a vertical multitubular boiler 48 in. diameter, 9 ft. high, enlarged at the top to 54 in. diameter for ample steam room. The flues extending from the fire-box to the combustion chamber are at all times below the water line, and are provided with copper ferrules. The boiler is constructed throughout of the best annealed steel, and is suitable for the ordinary working pressure of 100 to 120 lbs. per square inch. The car is supplied with a water tank holding 450 gallons, which can be filled from a locomotive tender.

The radius of the jib is 23 ft., and the distance from the sill to centre line of hook 17 ft., thereby enabling the jib to deposit a 34 ft. car on the track ahead.

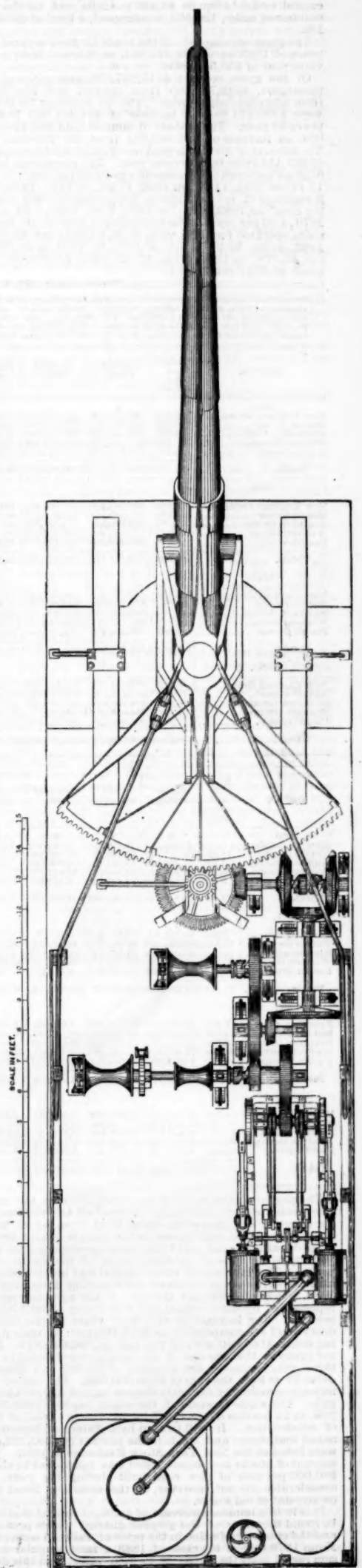
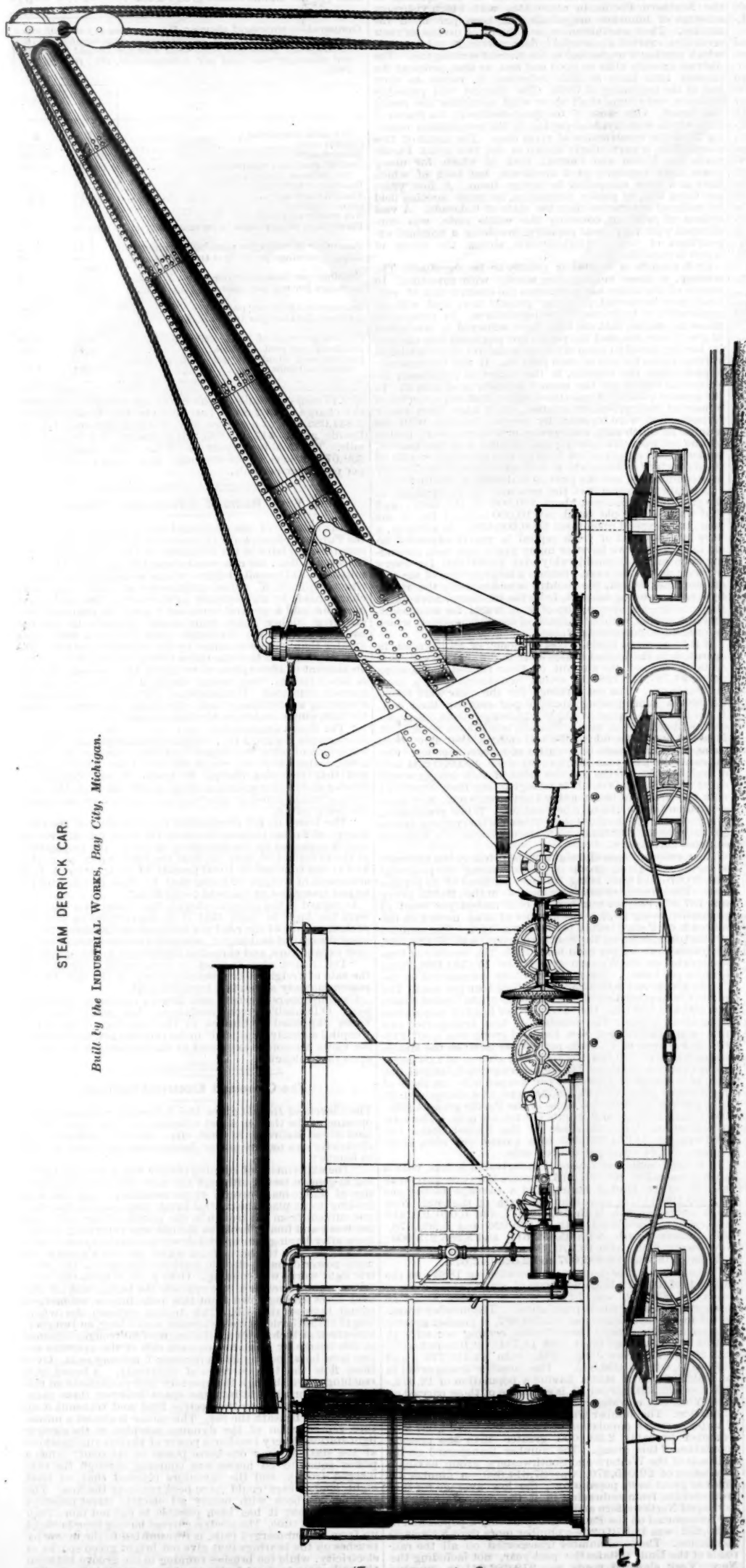
#### The Railroads of the United States in 1883.

[From the Introduction to "Poor's Manual" for 1884.]

With this we present to the public the seventeenth annual number of the "Manual of the Railroads of the United States." The accompanying statements show a mileage at the close of the calendar year 1883 of 121,592 miles, 6,753 having been constructed within the year. The total length of completed road at the close of the companies' fiscal years was 120,552 miles. The average mileage operated during the year was 110,414. The amount of share capital issued by the several companies up to the close of their respective fiscal years was \$3,708,080,583, an increase from the previous year of \$207,024,759. The funded debts of the several companies amounted to \$3,455,040,388, an increase from the previous year of \$219,497,060. Their floating or unfunded debts amounted to \$232,370,345, an increase of 61,199,388 from the previous year. The total increase of share capital and of funded and floating debts from the previous year equaled \$477,721,202. The total amount of all liabilities at the close of 1883 was \$7,495,471,811. The total per mile for completed mileage was \$62.176. The total of stock and liabilities for 1882 was \$7,016,750,109; per mile, \$61.303. The total for 1881 was \$6,278,565,059; the amount per mile, \$60.645. The total for 1880 was \$5,402,008,257; per mile, \$58.624. The total for 1879 was \$4,872,017,517; per mile, \$57.780.

It is to be observed that although, since 1879, the actual cost of construction per mile has steadily diminished, very

STEAM DERRICK CAR.  
Built by the INDUSTRIAL WORKS, Bay City, Michigan.





few expensive lines have been built, and during the last half of that period the cost of all construction material being unusually low, the apparent cost as represented by share capital and debt has steadily increased. The increase of cost in the four years since 1879 as represented by share capital and debt equals \$4,446 per mile, and for the whole number of miles, 120,552, constructed, a total of \$535,974,192.

The gross earnings of all the roads for their several fiscal years of 1883 were \$823,772,924, an increase from the previous year of \$53,563,095.

Of the gross receipts, \$215,287,824 were received from passengers, \$549,756,695 from freight, and \$58,728,405 from miscellaneous sources. The net earnings for the year were \$330,911,854, an increase of \$21,461,082 from the previous year. The amount of interest paid was \$173,139,064, an increase of \$18,843,684 from the previous year. The amount of dividends paid was \$102,052,548, an increase of \$21,114 from the previous year. The percentage in 1883 of gross earnings to investment was 10.99 per cent.; in 1882, 11.74; in 1881, 11.18; in 1880, 11.36; in 1879, 10.80. The percentage of net earnings to investment in 1883 was 4.49 per cent.; in 1882, 4.81; in 1881, 4.56; in 1880, 5.04, and in 1879, 4.40 per cent. The earnings per mile of all the railroads operated for 1883 were, gross, \$7.461; net, \$3.051; in 1882, gross, \$7.377; net, \$3.005; in 1881, gross, \$7.548; net, \$3.078; in 1880, gross, \$7.475; net, \$3.318; in 1879, gross, \$6.652; net, \$2.761.

STATEMENT SHOWING BY GROUPS OF STATES THE LENGTH OF LINES OWNED, SHARE CAPITAL, FUNDED DEBTS, FLOATING DEBTS, LENGTH OF LINES OPERATED, GROSS AND NET EARNINGS, AND INTEREST AND DIVIDENDS PAID, BY ALL THE RAILROAD COMPANIES OF THE UNITED STATES FOR THEIR RESPECTIVE FISCAL YEARS OF 1880, 1881, 1882 AND 1883:

GROUPS.	Miles of line Owned	Capital stock.	Funded debt.	Floating debt.	
1880.					
New England Group.....	5 955	\$ 191,067,230	131,112,111	\$ 13,950,157	
Middle Group.....	15,207	813,650,439	758,303,545	53,501,738	
Southern Group.....	14,121	337,265,149	282,658,151	17,381,857	
Western Group.....	61,187	1,354,031,831	1,186,438,856	70,498,226	
Pacific Group.....	5,677	212,065,576	189,341,280	7,157,861	
Totals.....	92,147	2,708,073,375	2,580,874,913	162,489,989	
1881.					
New England Group ...	6,134	193,965,606	131,634,931	16,662,422	
Middle Group.....	15,860	831,245,154	771,915,661	68,573,193	
Southern Group.....	16,767	338,950,061	275,131,623	23,734,287	
Western Group.....	58,173	1,337,393,452	1,403,160,761	100,456,353	
Pacific Group.....	6,290	225,819,846	197,190,080	13,339,918	
Totals.....	103,580	3,177,375,179	2,878,428,606	222,768,207	
1882.					
New England Group.....	6,259	197,721,216	130,032,502	17,493,569	
Middle Group.....	17,013	978,300,138	832,682,850	90,880,309	
Southern Group.....	17,710	363,034,357	410,690,656	22,091,875	
Western Group.....	66,617	1,684,075,411	1,639,444,182	113,518,056	
Pacific Group.....	6,862	227,904,702	213,785,043	26,169,068	
Totals.....	114,461	3,511,085,824	3,235,543,323	270,170,962	
1883.					
New England Group.....	6,323	198,544,058	144,346,982	17,426,041	
Middle Group.....	17,582	1,012,157,191	899,914,618	100,464,105	
Southern Group.....	18,966	404,792,911	457,360,083	25,157,579	
Western Group.....	70,344	1,784,008,291	1,756,985,191	130,230,180	
Pacific Group.....	7,480	307,638,131	193,523,506	49,099,080	
Totals.....	120,552	3,708,060,583	3,455,040,383	332,370,345	
GROUPS.	Miles of line operated.	Gross earnings.	Net earnings.	Interest paid.	Dividend paid.
1880.					
New Eng. Group.....	5,849	47,542,011	15,877,359	5,346,369	7,969,191
Middle Group.....	14,507	260,251,412	92,588,115	33,668,290	24,479,851
Southern Group.....	12,754	47,455,970	18,094,631	8,006,591	3,525,977
Western Group.....	45,360	200,941,915	131,848,183	49,474,773	33,117,500
Pacific Group.....	5,886	27,541,897	14,224,340	6,372,305	3,902,762
Totals.....	82,146	613,733,610	272,439,608	107,861,328	77,115,371
1881.					
New Eng. Group.....	5,995	50,158,075	16,321,607	6,129,371	8,393,030
Middle Group.....	15,125	219,396,443	94,215,571	43,303,731	33,315,581
Southern Group.....	14,374	63,337,273	23,248,447	11,146,877	5,993,259
Western Group.....	52,283	233,950,539	133,173,491	59,844,556	40,285,829
Pacific Group.....	5,816	36,008,632	19,171,301	8,102,767	7,787,491
Totals.....	92,971	701,780,982	283,130,227	124,587,502	93,344,190
1882.					
New Eng. Group.....	6,191	53,188,503	18,176,935	7,215,801	8,807,540
Middle Group.....	15,805	232,334,354	96,599,603	46,242,495	36,847,270
Southern Group.....	15,830	67,161,075	25,935,315	16,020,528	4,504,384
Western Group.....	61,316	275,882,271	155,165,905	76,612,487	45,945,401
Pacific Group.....	5,749	4,015,096	1,613,714	7,604,368	6,126,239
Totals.....	104,971	770,209,899	315,450,802	154,295,380	102,031,434
1883.					
New Eng. Group.....	6,243	59,155,769	16,373,972	7,018,344	8,572,150
Middle Group.....	16,364	245,813,605	107,259,223	53,810,418	39,874,985
Southern Group.....	15,823	69,844,273	26,856,488	18,574,184	3,576,310
Western Group.....	66,285	409,375,167	165,543,656	83,745,273	46,267,324
Pacific Group.....	5,759	39,584,116	20,879,193	9,990,945	6,760,770
Totals.....	110,414	823,772,924	336,914,884	173,139,064	102,052,548

The preceding statement is an abridgment of the much more extended one, embracing in detail all the railroads of the country. It shows that since 1880, a period of three years, there have been opened in the United States 28,405 miles of railroad, and that 6,091 miles were opened the past year up to the close of the fiscal years of the several companies. The increase of share capital and indebtedness of all the companies for the three years ending December 31, 1883, was \$2,093,433,054, the cost of the new mileage as represented by share capital and debt being about \$70,000 per mile. The increase in the three years of the funded debts of all the companies was \$924,165,440; of their floating debts, \$169,880,406; of the two, \$1,094,045,846. It is not probable that the cost of the mileage constructed in the three years equaled the increase of funded and floating debts by at least the sum of \$200,000,000. The cost of the mileage constructed certainly did not exceed \$20,000 to the mile. The whole increase of the share capital, \$999,387,208, and a portion of the funded debt, was in excess of cost of construction. It will be seen by a statement hereto annexed that stocks and bonds to the amount of \$530,132,000 were listed at the New York Stock Exchange in 1883. The amount of stocks and bonds listed was equivalent to about \$80,000 per mile of new road built during the year. A considerable amount, however, of the securities listed was on account of old works.

It is in this immense increase of fictitious capital that is to be found the cause of the general distrust which prevails, and the enormous decline in the price of railroad securities. From 1879 to near the close of 1883 a most singular delusion rested upon the public as to their value, and this delusion was taken advantage of on a vast scale by able and unscrupulous adventurers. Whatever was manufactured and put afloat was seized with avidity by an eager and un-

informed public. The delusion was increased and prolonged by payments on a very large scale of interest and dividends from capital. In this delusion the most loud-mouthed and unscrupulous promoters usually had the greatest success. The delusion culminated about the time of the opening of the Northern Pacific, in connection with which visionary schemes of immense magnitude had been put upon the market. Their worthlessness, and the rapid decline of their securities, exerted a powerful influence over the public mind, which continues unchecked to the time of writing this. The distrust extends alike to good and bad, so that prices at the present time have as little reference to values as they had at the beginning of 1883. The distrust will probably continue until time shall show what securities are really well based. One cause of the great decline in the shares of lines which were dividend-paying, is the competition resulting from the construction of rival lines. The result of this competition is particularly shown in the two great Pacific roads, the Union and Central, both of which, for many years, have regularly paid dividends, but both of which have now been compelled to forego them. A few years ago there was, in public estimation, no more inviting field for railroad enterprises than the state of Colorado. A vast system of railroads, covering the whole state, was constructed with very great rapidity, involving a nominal expenditure of nearly \$100,000,000, almost the whole of which is unproductive.

Such a waste of capital is greatly to be regretted. The remedy, if there be any, lies wholly with investors. In nearly all the states and territories the construction of railroads may be carried on under general laws, and without application to their respective legislatures. In prosperous times the success that old lines have achieved is predicated of every new one, and the public are attracted into the new by having issued to them often three dollars in securities in various forms for one of cash paid in. It not infrequently happens that the venture, in the outset so promising, involves the loss of all the money actually paid into it. In the greater number of cases the disasters that have overtaken numerous enterprises, or schemes, could have been easily foreseen, and were foreseen, by persons familiar with the manner in which such enterprises or schemes were gotten up and put upon the market, and familiar with the sources, tendency and extent of the freight and passenger traffic of the districts or sections which such schemes were professedly to accommodate, and the provision already made therefor.

It is safe to assume that the new mileage constructed in the past three years cost about \$30,000 to the mile; and that when our people build, say 10,000 miles of line in one year, they expend upon them \$300,000,000. In addition, a very large amount of fresh capital is yearly expended on old lines, so that we have for many years past been expending upon railroads considerably over \$1,000,000 for every working day in the year. Should a large portion of the cost of new lines be lost, the country is undoubtedly the richer by a corresponding amount, from the incidental advantages they confer—the opening up of vast tracts for settlement, and in bringing within the reach of markets products which before had no commercial value.

If it be assumed that the cost in money of all the roads in operation in the United States in 1883 did not exceed, as it certainly did not, the amount of their funded and floating debts, \$3,787,410,728, the actual investment was a most profitable one. The net earnings for the year were \$330,911,854, a sum equaling about 9 per cent. on their cost. If the fictitious capital could be eliminated from their accounts, their success, as investments, would have no parallel. If to net income be added the advantages that flow from them, the result would be a matter of especial wonder. Our railroads the past year transported over 400,000,000 tons of freight. At \$25 the ton, the value of this freight would equal \$10,000,000,000. It is enough to say that, compared with the wealth of the country thirty years ago, they have created on this continent a new nation. While penetrating every portion of the continent, at least wherever our people go, they for the first time create the condition of a firm and compact nationality.

The number of tons of freight transported by the railroads of the New England group of states during the past year was 30,670,213 tons, being 7.5 tons per head of its population. The number of tons transported in the Middle group was 187,927,736, the number of tons moved per head of population being 15.2. The number of tons moved on the railroads of Pennsylvania per head was 24.6. The number of tons transported on the Southern group was 26,080,589, the number of tons per head being 2.13. The number of tons transported on the Western group was 150,751,668, being 7.5 tons per head. The number of tons transported on the Pacific group was 5,073,233, being 3.42 tons per head. The number transported on all the railroads of the United States was 400,453,439 tons, the average per head of population being about 8 tons. The number of tons transported one mile on the railroads of New England group was 1,907,112,979, at a charge of 1.7 cents per ton per mile; on the Middle States group 16,100,054,154 tons, at a charge of 1.04 cents per ton per mile; on those of the Southern group 2,546,941,900 tons, at a charge of 1.78 cents per ton per mile; on those of the Western group 22,548,598,390 tons, at a charge of 1.23 cents per ton per mile; on those of the Pacific group 1,062,216,022, at a charge of 2.2 cents per ton per mile. The total movement on all the railroads of the United States for 1883 equaled 44,064,923,445 tons moved one mile, at an average of 1.24 cents per ton per mile.

In freight traffic the state of Pennsylvania is first, with a tonnage moved of 105,507,916, or more than one-quarter of the total of the United States, and a tonnage moved one of 7,859,109,449, or more than one-sixth of the total. New York comes second, with 50,372,817, and 6,040,404,413 respectively; Ohio third, with 43,065,926 and 5,969,373,057; Illinois fourth, with 35,472,611, and 5,266,273,900; New Jersey fifth, with 19,270,393 and 1,140,070,889; and Indiana sixth, with 18,506,607 and 2,625,042,677.

The number of passengers transported in 1883, on the railroads of the New England group of states having a population of 4,009,529, was 72,377,556—a number about 18 times as great as its whole population. The number transported in Massachusetts was 53,080,887, a number greater than for any other state, Pennsylvania coming second with 49,970,774; New York third, with 43,734,962; Illinois fourth, with 25,116,732; New Jersey fifth, with 24,416,770; and Ohio sixth, with 21,096,883. The number transported in the Middle group of states having a population of 12,374,510, was 126,735,899 (which is exclusive of those carried on New York city elevated roads) a number about 10 times its population. The number transported in the Southern group of states having a population of 12,244,888, was 14,097,866, a number probably 2,500,000 greater than the present population of this group. The number transported on the railroads of the Western and Southwestern group having a population of 20,045,870, was 87,614,699—a number 4.4 times as great as its population; the low average for this group arising from embracing in it the comparatively undeveloped Northwestern and Southwestern states. The number transported on the Pacific group having a population of 1,480,272, was 11,870,626—a number more than 8 times its population. The total number transported on all the railroads of the United States the past year, not including the New York elevated roads, was 319,686,641—a number

equaling more than 6 times the total population of the United States in 1880.

The number of passengers moved one mile in the New England group was 1,187,719,657, at a charge of 2.15 cents per mile; in the Middle States group 2,489,766,204 at a charge

Comparative statement showing the averages per mile of stock, bonds, cost and earnings, percentage of expenses to earnings, earnings per passenger train-mile and per freight train-mile, per passenger-mile and per tonnage-mile, etc., for 1882 and 1883.

	1883.	1882.
Per mile completed:		
Capital stock.....	\$ 30,759	\$ 30,074
Bonded debt.....	28,650	28,268
Cost of road and equipment.....	55,461	52,726
Per mile in operation:		
Passenger earnings.....	1,951	1,926
Freight earnings.....	5,092	4,824
Gross earnings.....	7,461	7,377
Net traffic earnings.....	2,702	2,670
Percentage of expenses to earnings.....	63.78	63.61
Passenger earnings per passenger train-mile.....	1.11	1.14
Freight earnings per freight train-mile.....	1.56	1.59
Earnings per passenger per mile.....	2.422	2.514
Earnings per ton per mile.....	1.236	1.236
Average distance per passenger.....	27.32	25.89
Average distance per ton.....	110.04	109.02
Interest per cent. of bonds and debt.....	4.57	4.40
Dividends per cent. of stock.....	2.75	2.91
Interest and dividends per cent. of stock, bonds and debt.....	3.54	3.65

of 2.17 cents per mile; in the Southern group 613,891,085, at a charge of 2.82 cents per mile; in the Western group 3,834,082,895, at a charge of 2.56 cents per mile; in the Pacific group 415,849,833, at a charge of 2.84 cents per mile. The total movement on all the roads equaled 8,511,309,674 persons moved one mile, at a charge of 2.42 cents per passenger per mile.

#### New York Railroad Commission Decisions.

In the matter of the complaint of Streeter & Bro. against the Fonda, Johnstown & Gloversville Railroad, and of the counter-complaint of the President of the company against Streeter & Bro., the case was referred by the Board to Commissioner O'Donnell, before whom a hearing was had at Gloversville, N. Y. Two points were at issue. An extra charge made by the company to Streeter & Bro. as shippers of grain and a general complaint that the company was charging higher rates than could properly be allowed by law, so that the dividends upon the stock were much greater than were warranted by the outlay on the road. The company claimed that the extra charge on freight was made on account of the expense of weighing and loading Streeter & Bro.'s freight, they having declined to deliver it in the manner requested. Commissioner O'Donnell's opinion, after discussing the testimony and arguments at length, reaches the following decision on the first complaint:

"The Board recommends that the Fonda, Johnstown & Gloversville Railroad Co., within a reasonable time, place at a convenient place for shippers, at their station at Johnstown, scales which will weigh not less than 8,000 pounds, and that no extra charge be made Messrs. George A. Streeter & Bro. for weighing their goods through the company's freight-house or otherwise during the time such scales are being put in.

"The Board do not recommend the refunding of the overcharge of 2 cents hitherto made by the road, for the reason that it appeared by the testimony of one of the respondents at the examination that 'he beat the road when he could,' and at one time out of 1,000 pounds of freight by a false statement of weight, claiming that he was justified by the unjust treatment of the road to his firm."

In regard to the general charge that rates over the road were too high he finds that it is not founded on fact, the present income of the road not being an unreasonable return upon the cost of building it, computed on the basis of actual cash expenditure, and embodies his decision in the following: "The Board also declines to recommend a reduction of the rate of freight to or from any points on the line, for the reasons already stated in a former report."

Commissioners Kernan and Rogers concur in Commissioner O'Donnell's recommendations, but differ from the views expressed by him as to the meaning of the words "capital actually expended" in the railroad act, and reaffirm the views heretofore expressed by the majority of the Board upon that subject.

#### The Cleveland Electrical Railroad.

The Cleveland Herald gives the following account of the opening of the Garden street extension of the East Cleveland Street Railroad in that city, which is worked with electricity as a motive power, being somewhat over a mile in length:

"The experiment of running the car was a success, speaking in general terms, although the new and untried condition of things made several stops necessary, and the arm holding to its place the central brush that receives the electric current from the trough in the middle of the rails was too weak and finally broke as the car was returning to the barn after having run up and down the track several times. Four miles from the barns from which the car started a 30 horse-power dynamo-electric machine like that in the electric light works was running. Over a No. 6 wire the electric current flowed to a pole opposite the barns, and it slid over wires leading down from this pole into a submerged trough between the rails. This trough extends the whole length of the Garden street extension, a mile long, and an aperture about an inch wide runs the length of the trough. Fastened in this trough by insulators on each side of the aperture are two iron bars, looking like miniature T railway rails. Over these flow the two currents of electricity. A broad iron reaching down through the aperture and projections on this iron, called brushes, fit into the space between these rails. These brushes catch up the electric fluid and transmit it up to the motor beneath the car. This motor is almost a miniature reproduction of the dynamo machine at the electric light station. Every two-horse power of the dynamo machine at the station gives one-horse power on the road. Thus a power equal to 15 horses was coursing through the submerged trough, and the inventors claimed that at least eight loaded cars could have been run over the line. The trouble has been with nearly all electric street railways heretofore that it has been possible to run not more than two cars at a time. The electric current having been brought up from the submerged rails, is transmitted to the motor by brushes on the bearings that give out bright green sparks of electricity, while the brushes running in the groove between the rails seem to shoot forth at times a reddish fire. The



young man with the lever in hand pushed down the bearing brushes on which the electric current was waiting to jump to the motor. The connection with the car motor having been made, the armature began to revolve rapidly and turn the pulleys over, which ran a belting made of four-coil wires which ran over a larger wheel and from thence to the wheel inside the car wheel proper and attached to the same axle. Then the car moved off. It swept around sharp curves with ease. It could, the inventors claim, be made

down track. It was too late, however, as the car had passed the latter station at a rapid rate.

The 4 o'clock express train for Germantown was at this time stopped at the Columbia avenue station. The engineer of the train, Michael C. Loughry, was about to start the train, when, looking ahead, he perceived the freight car coming down at a rapid speed. Mr. Loughry grasped the situation at a glance, and jumping from his engine ran quickly to the switch below Montgomery avenue and turned

track taken up before the Villard party with its rosewood tie put in an appearance. Mr. Villard and his friends arrived, the tie was laid with appropriate ceremonies, and then taken up and replaced with the tie that in reality marked the completion of the road. The party then returned home and the last tie that is not the last tie was made into a clock and adorns President Villard's parlor, while the last tie proper is being soaked with northern snows and covered with coals from the locomotives rolling along over the Northern Pacific.—*Denver Tribune*.

#### White Line City.

A suburb of Terre Haute, Ind., is called White Line City. The streets are laid out regularly and the residences, some 200 in number, are condemned White Line car bodies.—*St. Louis Republican*.

#### Destroying Canceled Tickets.

The Connecticut River road is disposing of the three-years' accumulation of canceled tickets by using them as fuel for the stationary engine in the repair shops. The company used to sell the old tickets for paper stock, but the sale amounted to only about \$75 a year at 1½ cents a pound, and then some of the tickets found their way into circulation again, so that it seemed to be necessary to cut them up before selling for paper stock, and this cost more than the sale would warrant.—*Springfield Republican*.

#### His First Railroad Trip.

"Talking of greenhorns," said an old conductor to me recently, "it's in the older states one sees the greenest of them. Fifteen years ago I was running a passenger down in Kentucky. One morning when the train drew up at a little station a chap in copperas-dyed breeches, blue jeans coat and vest, and a home-made wool hat, addressed me as I stepped to the ground.

"Is you the clerk of this kyar?"

"I'm the conductor—what do you want?" I answered him.

"I want to go to Louisville on this kyar."

"Well, get aboard," I told him. He climbed the steps and knocked on the door. When he had rapped a second time some wag inside called out, "Come in!" There were at least forty passengers in the coach. He began at the front seat, shaking hands with every one clear to the back end, and asking each "How you do?" a d then "How's your folks?" Of course, it was a regular circus for the other passengers. He lived thirty miles back in the mountains, and had never been on a train before. When he stepped off the car at Louisville I felt sorry for him.

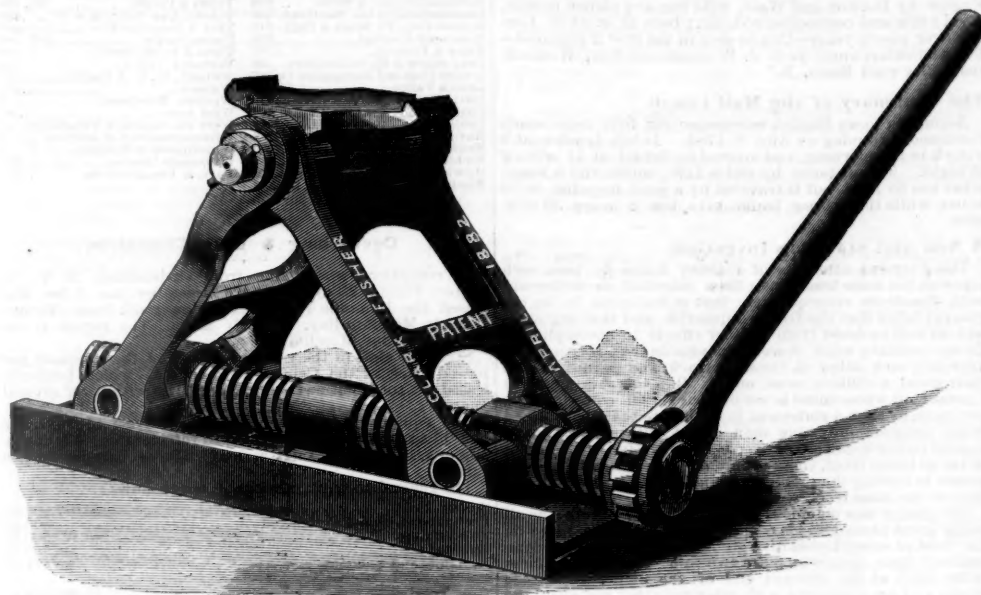
"Well, I left Kentucky soon after that and came to Illinois. One day, four years ago, while on a visit to Louisville, a well-dressed, well-to-do looking man stopped me on the street. He had to tell me where I had ever seen him before. Would you believe it?—the greenhorn had developed into one of the first merchants of Louisville, and is to-day reputed to be worth \$100,000."—*Indianapolis Sentinel*.

#### A Railroad Prophet.

If any muse wants to sing of the destructive wrath of the two young men of Hempstead who recently filled a Long Island smoking car with gore she will be compelled to hire a hall in which to sing. The destructive wrath in question is not a matter of importance to the public, and it is unworthy the space which, in a conscientious, high-minded journal, should be devoted to the abuse of political opponents.

At the same time there is one feature of the wrath of one of the Hempstead young men which ought to commend him to public favor. It is alleged that this young man, on entering the smoking car of a Long Island train, found the other young man sitting with his feet placed upon the seat in front of him, and by this means monopolizing four seats. It is further alleged that the first young man proceeded to turn over the back of the seat on which the second young man's feet were reposing, and to let it fall smartly on the legs of the latter. If this be true we need not be surprised that the second young man vindicated the integrity of his legs by wiping up the floor with the first young man, but no public-spirited citizen can fail to applaud the sudden dropping of the back of a car seat on the legs of a seat monopolizer.

The female seat monopolizer never pretends that her feet are entitled to two whole seats. When she has turned over the back of the seat in front of her she secures the seat by placing a parasol and a small bag upon it. Weary men may come and go along the aisle of a crowded car, but the female



THE FISHER DUPLEX JACK.

to run at eight or even 15 miles an hour—the ordinary street car does not exceed five. Lest small boys should stuff obstacles in the crevice between tracks, a steel sweep will be rigged in front of the brush that runs in the crevice. Ice and snow, being non-conductors, will not be a source of much trouble; but, while frozen water is a non-conductor, water in its normal state is a good conductor of electricity, and to carry it out of the trough little catch-basins will be built at frequent intervals. "The cost of fitting up this mile of track did not exceed \$5,000," said one of the syndicate of Cleveland and New York capitalists interested in the electric street railway venture. "It would cost about \$80,000 a mile to alter an ordinary street railway to a cable line."

#### The Fisher Duplex Jack.

We illustrate a form of jack specially adapted for lifting track without interrupting the passage of trains. We believe the jack was designed by Mr. Clark Fisher, of Trenton, N. J., at the suggestion of Mr. H. D. Blunden, engineer of the Erie Railroad. On main trunk lines, where the trains are frequent, it is obviously very inconvenient to have to remove the track jack for the passage of every train.

Although applicable to any purpose, this jack is specially designed for surfacing track at low joints. It can be adjusted for any point from ½ in. to 3 in., and is only 7 in. high when in its lowest position, so that when set under the rail the base is about level with the bottom of the tie. The base has a bearing surface of 16 in. x 5½ in.

The jack is capable of lifting 15 tons, although it weighs but 30 lbs. The screw, which is 1½ in. diameter, and the bed-plate are made of wrought iron, and all the other parts are made of cast steel.

#### Portable Stop Block.

The accompanying illustration represents a portable stop block lately invented by Mr. G. L. Broomhall, of Paterson, N. J.

It is intended to secure cars that are switched upon side-tracks, and prevent their being moved by the wind or otherwise so as to foul the main track, and possibly cause a disastrous accident. It can, however, also be used as an adjunct to a wrecking car, to secure guy ropes to any part of the track, or can be used to block trucks in a repair shop.

The construction of the stop block is simple. The hand lever is fast on a shaft carrying two side levers which press against inclined faces on the two halves of the stop block, which are thus made to grip the rail tightly. The handle can be pinned or locked down, so that the block cannot be released by unauthorized persons.

As at present made the side arms might possibly work loose and the construction might possibly be improved by making the centre-pin and side arms in one piece, the latter being bent down after the hand lever and main halves of the stop block were in position.

#### THE SCRAP HEAP.

##### An Engineer's Presence of Mind.

An incident, showing the quickness of perception and presence of mind of a railroad engineer, occurred on Friday afternoon last on the Germantown Branch of the Philadelphia & Reading Railroad. A platform car, which had been standing on the siding at the iron works above the Sixteenth street station, became loosened, and, it is said, propelled by the wind, started down the road, soon running through a patent switch on to the up-track.

The agent at Sixteenth street telegraphed to the depot at Ninth and Green streets, and the officials at the latter point telegraphed the signal station, below Broad street, that the car was coming down, and to throw it off or turn it on the

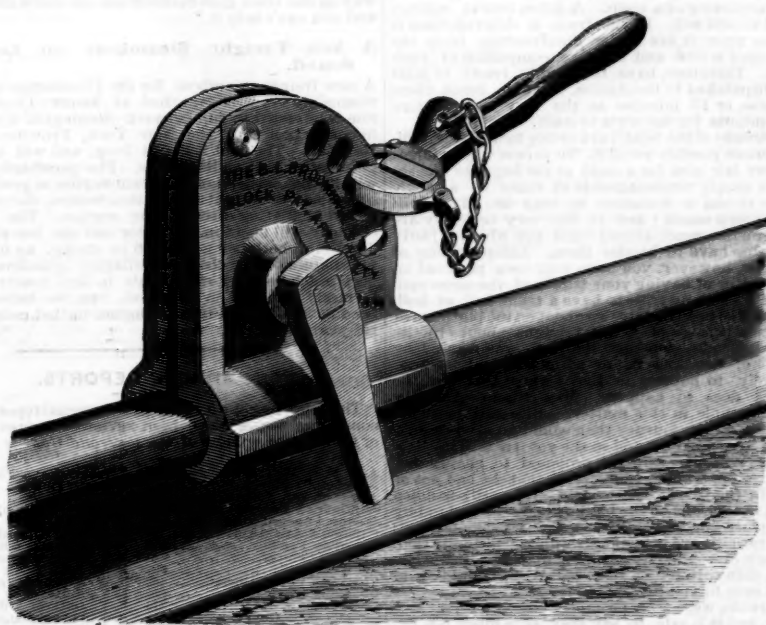
the car on to the down track just in time, it is thought, to prevent what would have been a bad wreck, involving, perhaps, loss of life. The engineer then quietly boarded his train and reached Germantown only two minutes behind time, none of the passengers being aware of how narrowly they had escaped a collision. Superintendent Sweigard, in recognition of his presence of mind and prompt action, gave Mr. Loughry a short vacation.—*Philadelphia Ledger*, July 28.

#### A Giant Powder Accident.

A Denver dispatch says that on the morning of July 23, as a work train on the Denver & Rio Grande was passing through Black Cañon, West of Gunnison, Col., a spark from the engine ignited a box containing giant powder. A terrific explosion followed, wrecking all the cars in the train and damaging the engine badly. There were some 40 workmen on the train, of whom three were killed at once and 27 others more or less hurt, most of them badly.

#### The Last Tie on the Northern Pacific.

The rosewood tie that was laid on the Northern Pacific by President Villard in the presence of a large party of distinguished guests of the road, and which caused the outlay of \$250,000 in suppers and tinsel, has gone the rounds of the press. No railroad event for years caused so much comment. But there is an unwritten page in the history of the laying of the last tie and of the last rail that the *Tribune* this morning discloses for the first time. The rosewood tie was not the last laid. The road had been completed and trains run over it before President Villard's party reached what has been called the break. The point where the last rail was



PORTABLE STOP BLOCK.

laid was at Gold Creek, eight miles west of where the Utah & Northern connects with the Northern Pacific. While Villard was in St. Paul ordering the common bunting on the company's office to be replaced with silk, about 200 cars of freight had accumulated at the break. Mr. C. S. Prowell, Road-master in charge of the construction, and Mr. J. T. Fitzpatrick, in charge of the Eastern construction work, and formerly of the Denver & Rio Grande in this city, held a consultation and decided to lay the track and run over the freight. The rails were laid, the freight run over and the

monopolizer gazes calmly out of the window and never yields her unlawful seats unless some bold man touches her on the shoulder and suggests that she remove her parasol and bag. Objectionable as this variety of woman is, she is far less objectionable than the man who believes that his feet are large enough to be entitled to seats of their own. Such a man, when he has once taken possession of four seats and placed his feet prominently on exhibition, seems to adopt the weak strategy of pretending to look out of the window. He evidently thinks that is giving a free exhibition



of his feet and ankles he is earning the right to occupy four seats. He will usually consent to withdraw his feet to private life and yield possession of the seat in front of him when requested so to do by a man in apparently good health, but he always shows by his manner that he regards himself as an unappreciated and ill-treated person.

If a Hempstead young man has really set the example of dispossessing a male seat monopolizer by silently dropping the back of a seat on his legs he has done a noble work. His example should be, and doubtless will be, generally followed. No man—or seat monopolizer to that effect—will keep his feet on a seat longer than two seconds after the back of the seat has been dropped upon his shins, and no man who has once been subjected to this wholesome treatment will be apt to put his legs in jeopardy a second time. To ask a seat monopolizer if he will be so kind as to take down his feet is a waste of courtesy. A person who will not only deprive other people of seats, but who will coolly put his muddy or dusty shoes on a cushion on which decent people are expected to sit, deserves no sort of consideration. That a prophet should come out of Hempstead to teach railroad travelers how to treat a seat monopolizer is certainly unexpected, but if such a prophet has appeared we should hasten to honor him.—*New York Times*.

#### A Double Accident.

On the morning of July 25, as a pusher engine on the Lehigh Valley Railroad was starting to run light from Glen Summit to White Haven, Pa., having just taken a long coal train up the grade, the boiler exploded. The force of the explosion was upward and backward, the rear end of the boiler being torn out and the fire-box thrown over 100 ft. away. There were at the time four men on the engine, the engineer, fireman, a brakeman and a telegraph operator, all four of whom were instantly killed, leaving no one who could give any particulars of the explosion.

A coal train was following the pusher, and, no one being left alive to flag it, struck the wrecked engine. The engine of the coal train was thrown over and badly wrecked by the obstruction on the track, and 34 coal cars were piled up on top of it, making a very bad wreck and blocking the road the best part of the day. The engineer of the second train was considerably hurt. The explosion was remarkable from the fact that not a single survivor remained of the men who were on the wreck.

#### Australian Natives and Railroad Water Tanks.

A correspondent of the *Indian Railway Service Gazette*, writing from Australia, says:

"The aboriginals of these colonies are a queer race, and the various ideas introduced by the white man are to their unsophisticated natures great mysteries. Some time back, during the construction of a railway in the back districts, the workmen were engaged erecting a tank for supplying the locomotives with water. A number of stout piles were erected and a large iron tank fixed on top. While these operations were being conducted a number of black fellows were watching their progress, and they conceived the idea that the water tanks were to be placed up so high to prevent these aboriginals stealing the water—it was in a district where the water supply is precarious. One of their number informed the workmen that if black fellow (the aboriginal) was dry he could easily climb up and get a drink. He was told the tank was for engine to get a drink. 'Why put him (the tank) up there, long cart (railway train) not got long neck, him no drink then, and him take long time to grow to drink him there; besides fire no want water.' A few days after the ballast engine came along and took water at the crane. The black fellows set up a shout and cried it was a new animal, he drink big drink all at horse's tail—referring to the pipe of the water crane being put into the tender of the engine. I need not say this speech caused the driver and his stoker (a new hand in the colonies) to have a jolly good laugh at the new idea these blacks had of their iron horse."

#### Some Advice About Baggage.

As to being beforehand in the matter of getting the trunk or trunks to the railway station, there is much to be gained for ourselves and for others practicing that virtue. Particularly is this the case just now when such battalions of trunks are moving by every train. Two or three scores of trunks getting to the station just at train time means one or other of two things: either the train must be delayed to get them aboard, or the baggage must be left behind to take some following train. This latter is the thing that usually happens when the baggage is late, for no experienced railway official will (if he can help it) take the numerous risks that follow the late starting of a train. A dozen trunks will not stop him, and should not. If the train is delayed, then it and all persons upon it are under disadvantage from the start, and danger is now and then the companion of such disadvantage. Therefore, have the trunks ready in good season to be dispatched to the station, so as to reach there say 20 minutes, or 15 minutes at the very least, before the hour and minute for the train to start.

Don't have trunks of the Noah's ark or dog-house style or dimension if you can possibly avoid it. No person who indulges in them has any fair plea for a scold at the baggage smashers. They are simply unmanageable at times by a single man, however strong or dexterous he may be. They will slip and come down smash; and at the very best they are severe strains on the much-abused—and not always justly abused—men who have to handle them. Independently of the baggage-men, however, you have your own personal interest in the matter of having your trunks of the more easily handled kind. It is no trifle to have a trunk full of holiday clothes burst open and strewn about on the platform at a railway station because of a fall brought about by its own size and weight, whether the fall was caused by the difficulty of handling it, or by actual carelessness. It is more likely to happen in the former than in the latter, and it does so happen. Miss Susan Anthony set a good example in this matter. She had more apparel to carry on a long journey than would go in one trunk, unless it was a very big one, and so she got two. The baggage-man on a Western railroad proposed to charge her extra for the second trunk. She replied that she had not as much weight in the two moderate-sized and easily-handled trunks as was in any one of the big unwieldy ones standing about on the platform, and she asked the baggage-master: "Would you rather have it in one straining load to lift than in two that any one could easily toss about?" "No," he said, "but I didn't think of that." "Well, I did," said Susan, "it's a save to you."

Those two trunks were then promptly passed without any extra charge; and it is safe to say they were much less exposed to smash either by accident or by the "don't-care-whether-the-dog-house-gets-smashed-or-not" feeling with which such a horse-load is tackled by the overtaxed strength and skill and temper of the baggage-handler. The last point to be remarked upon is that all baggage should be marked so as to distinguish it from all other. Did any one ever hear of a trunk with the owner's name and town, city or village upon it being sold at auction among the unclaimed baggage which the railway companies have to auction off at intervals to get rid of it, and to comply with the law? That is one of the things which don't happen—or if it does it is among the rarest of occurrences. The reason is

that the stray trunk has that upon it which points out the owner and brings trunk and owner together again—even though it may be after many days. And more than that, the name helps to arrest the trunk on its wanderings and prevents it from getting very far astray. So mark your baggage even though it be only a hand-satchel, a shawl-strap bundle, or a paper parcel, if there's anything in it you don't want to lose.—*Philadelphia Ledger*.

#### A Veteran Engineer.

We cut the following interesting advertisement from the columns of the *London Engineer*.  
"To Museum.—For sale as a curiosity, a large Beam Engine by Boulton and Watt, with sun-and-planet motion, wood beam and connecting rod, etc.; been at work in London over ninety years—Can be seen in use now if required.—For particulars apply to G. J. Worssam and Son, Wenlock-road, City-road Basin, N."

#### The Centenary of the Mail Coach.

According to an English newspaper the first mail coach commenced running on Aug. 8, 1784. It left London at 8 o'clock in the morning, and arrived at Bristol at 11 o'clock at night. The distance by rail is 118½ miles, and is somewhat less by road, but is traveled by a good bicyclist in 10 hours, while the express trains take but 2 hours 36 minutes.

#### A New and Startling Invention.

The frequent attempts of railway trains to pass each other on the same track have been attended so uniformly with disastrous consequences, that it has come to be the general belief that the feat is impossible, and that engineers will do well to desist from further efforts to accomplish it. To the ordinary mind it seems inevitable that if two trains approach each other on the same track, and do not slacken their speed, a collision must ensue. But there is a man in Connecticut whose mind is not ordinary. Of course, we do not mean by such a statement to insinuate that the Nutmeg State possesses only one man gifted with extraordinary mental endowments. The woods there are full of them, but so far as heard from, there is only one who has exercised his genius in solving the problem of how to enable two trains to pass on the same track without collision.

The plan of this ingenious person is very simple, as all really great plans and ideas are. He proposes to place on the front of every locomotive going in one direction a long inclined plane, upon which are two rails. These come close to the track at the forward end of the plane, and at the hinder end are connected with other rails that run along the tops of the cars, and down to the main track again on another inclined plane in the rear. When the train provided with this attachment meets another on the same track, the latter simply goes over the former, its weight making the connection of the front of the inclined plane and the rails of the main track perfect, and acting at the same time as a brake on the speed of the train underneath.

If this invention had been made a few years sooner, the number of double-track roads in the country would not now be half as great as it is. A single track, with occasional switches for heavy freight trains, would answer all purposes, and the cost of constructing railroads would be decreased 25 per cent. The system will, of course, be adopted immediately on all single-track roads, and within a few years the sensation of riding over or under another moving train will be so common as to pass almost unnoticed. This is a great country.—*New York Mail and Express*.

#### Robbing the Peach Train.

A freight conductor on the New York, New Haven & Hartford Railroad recently told some of the difficulties of fruit transportation through New Haven. He said: "When the peach train is running you may lock the car door and put a seal on it, and I will give any man a hundred dollars who can run a peach train through New Haven without losing several baskets. When the train is in the 'cut' it goes about as fast as a good-sized boy can run comfortably. As the peach train goes through, the 'cut' is filled with urchins. You may shoot at 'em with guns, but that don't do any good. A big fellow picks up a small hoodlum and runs along beside the train. The little fellow catches on to the outside of the car and hangs there. Another fellow hands him a short, stout stick. The boy on the car pries open a slat with this, far enough to put in his arm. Over comes a basket, and as he paws into it, the peaches fly out on the ground in a stream and are gathered by the crowd. Six or seven baskets are usually emptied in this way as the train goes between the old depot and Mill River, and you can't help it."

#### A New Freight Steamboat on Long Island Sound.

A new freight steamboat for the Providence & Stonington Steamship Co. was launched at Noank, Conn., last week. She is intended to run between Stonington and New York in connection with the New York, Providence & Boston Railroad. The boat is 305 ft. long, and will have the Morgan feathering paddle-wheels. The peculiarity of the boat will be that, instead of the beam-engine so generally used on side-wheel steamboats in Eastern waters, she will have compound oscillating direct-acting engines. The high-pressure cylinder will be 42 in. diameter and the low-pressure cylinder 78 in., both being 10 ft. 6 in. stroke, an unusual length for engines of this class. Oscillating cylinders have never been much used for steamboats in this country; they were formerly common in England, but, we believe, have not been generally used in new engines in that country for several years past.

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#### Ogdensburg & Lake Champlain.

This company owns a line from Ogdensburg, N. Y., to Rouses Point, 122 miles. Since December last it has also leased the Lamolite Valley Extension road, from Rouses Point to Maquam Bay, Vt., 12¼ miles. The report is for the year ending March 31.

Since the close of the year the control of the company has passed back to the Central Vermont Co., which formerly leased the road, but has had nothing to do with it for several years.

The equipment consists of 82 locomotives; 14 passenger and 6 baggage cars; 1,456 box, 10 refrigerator, 45 butter and egg, 31 stock, 234 flat and 17 caboose cars; 4 service cars.

The general account, condensed, is as follows:

Stock.....	\$3,077,000.00
Preferred stock not exchanged.....	500.00
Funded debt.....	\$3,483,900.00
Bills payable.....	746,262.50
Accounts and balances.....	80,771.40
Total.....	\$7,407,434.41
Road and equipment.....	\$6,860,555.72
Improvement account.....	39,654.48
Lamolite Vy. Extension advances.....	20,262.10
Materials.....	63,489.90
Accounts and balances.....	133,486.29
Cash.....	28,838.17
Profit and loss, debit balance.....	261,146.74
	7,407,434.40

There was no change in stock; bonds increased \$9,000, and bills payable were increased \$175,262. The funded debt includes \$600,000 first mortgage; \$999,750 income; \$380,000 sinking fund and \$1,514,150 consolidated mortgage bonds.

The earnings for the year were as follows:

	1883-84.	1882-83.	Inc. or Dec.	P.c.
Freight.....	\$392,244	\$397,878	D. \$5,574	1.4
Passengers.....	132,880	126,443	I. 6,436	5.1
Mails, etc.....	36,682	42,208	D. 5,516	16.1
Car service, balance.....	61,542	76,727	D. 14,185	18.7
Total.....	\$623,377	\$642,196	D. \$18,819	2.9
Expenses.....	418,826	450,768	D. 31,932	7.1
Net earnings.....	\$204,551	\$191,428	I. \$13,123	6.8
Gross earnings per mile.....	4.987	5,264	D. 277	5.2
Net earnings per mile.....	1,636	1,691	I. 55	3.2
Per cent of expenses.....	67.19	70.19	D. 3.00	..

There was a falling off in gross earnings, but a gain in net earnings was secured by a considerable reduction in expenses.

The results of the year were as follows:

Net earnings, as above.....	\$204,550.61
Interest on bonds.....	\$157,073.43
Floating debt.....	41,210.37
	198,283.80
Balance.....	\$6,266.81

No statement is made of rental paid for the Lamolite Valley Extension, although a charge of \$20,263 is made in general account for advances to that road. The debit balance of profit and loss was increased \$1,527.41 during the year.

The freight traffic was as follows:

	1883-84.	1882-83.	Decrease.	P.c.
Tons freight carried.....	361,322	374,059	12,737	3.4
Ton-miles.....	32,209,205	33,813,061	1,603,256	4.7

Receipts of grain were 2,559,512 bushels, against 3,796,907 for 1882-83; a decrease of 1,237,395 bushels, or 32.6 per cent.

The report (which is made by the old management) says that while the lake business by the regular line of steamers was good the grain brought by the sailing vessels and outside craft was not up to former seasons, as the share of the through rate coming to this company does not admit of paying the rates demanded for the lake service. In order to increase the lake business to Ogdensburg arrangements were made with the Detroit Dry Dock Co. to build and equip two more large steamers for the Ogdensburg & Detroit line to be ready for use in 1884. These steamers are now in use, having a capacity of 60,000 bushels of corn each. In order to increase the outside shipping movement arrangements have been made for a large contract to carry coal from Charlotte to Chicago and Milwaukee, thus giving the vessels coming to Lake Ontario return cargoes.

The Lamolite Valley Extension road, connecting this road at Rouses Point with the St. Johnsbury & Lake Champlain, was completed in December, 1883. It is 12¼ miles long and opens to this road a new route to Northern New England. It is operated by this company under a perpetual lease, at a rental of 6 per cent. upon its cost, with an annual sinking fund. Arrangements have been made for several fast freight lines to run over this connection, and also for the running of through passenger cars.

The Northern Adirondack road has been completed from this road at Moira southward 20 miles toward the Adirondacks, and work is progressing on an extension. It has already proved a valuable connection, bringing to this road a considerable amount of lumber and other business.

During the past five years the road has been largely rebuilt, 105 miles of main line having been laid with steel rails, leaving only 17 miles of road with iron rails. There were 1,200 tons of steel rails laid last year, and 59 new cars were built. Several new station buildings were put up and other improvements made.

The preferred stock has now all been exchanged for consolidated bonds and cancelled. A sufficient amount of the consolidated bonds has been set aside for the payment of the first-mortgage bonds due in 1897, and the sinking fund bonds due in 1890. The remainder of the issue of consolidated bonds was appropriated for improvements on the road. The road has been put in good condition without the



use of the full amount, and a considerable balance still remains on hand to be used as the directors may decide.

#### Atlanta & West Point.

This company operates a line 87 miles long, from Atlanta, Ga., to West Point. Of this it owns 81 miles, and leases the use of 6 miles, from Atlanta to East Point. The report is for the year ending June 30.

The company has no funded debt. It has \$1,232,200 stock and \$1,232,200 certificates of indebtedness bearing 6 per cent. interest, which were issued to stockholders as a dividend in 1881.

The earnings for the year were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Earnings.....	\$412,040	\$406,192	I. \$5,848	1.6
Expenses.....	279,232	251,381	I. 27,851	11.1
Net earnings.....	\$133,378	\$154,811	D. \$21,433	13.9
Gross earn. per mile.....	4.743	4.689	I. .054	1.6
Net earn. per mile.....	1.533	1.779	D. .246	13.8
Per cent. of exps.....	67.66	61.89	I. 5.77	

The increase in gross earnings was more than offset by that in expenses, resulting from increased expenditures on the property. The result of the year was as follows:

Net earnings, as above.....	\$133,378
Interest on certificates of indebtedness.....	\$73,932
Dividends, 6 per cent.....	73,932
	147,864

Deficiency for the year.....\$14,486

The report of President L. P. Grant says: "This sum has been drawn from a reserve fund, the surplus income of former years. A proper analysis of the expense account will show that there are included expenditures for betterments to the extent of about \$30,000. With this credit the ratio of current expenses and earnings would have been reduced from 67% to 60.4 per cent., and the net income would have shown a small surplus after paying interest and dividends. With active competition by the new lines for the long through business which we have heretofore largely controlled, coupled with the present depressed condition of the country, our future prospects are not encouraging. For the ensuing year, however, we can safely predicate a considerable revenue beyond the normal business, from travel to and from the New Orleans Exposition, sufficient, it is believed, with the aid of reduced expenses, to meet fixed charges and pay reasonable dividends.

"It is a source of relief and gratification to the directors that the renewal of the old iron rails with steel is so far advanced. There is now a trifle less than 22 miles of iron rails in the track, the majority of which are in good condition. The replacement of old rails is now so well in hand that the future progress may be conformed somewhat to the conditions of the company's finances from time to time. It is not probable that steel rails will advance materially in price for some years to come. If, therefore, the business shall not warrant the expenditure for an early completion of the replacement, the expenses may be spread over the space of five years.

"The ballasting of track with gravel is an important improvement and should be carried forward to completion during the ensuing year. The cost of this work is moderate compared with its advantages, some of which are increased comfort of passengers and lessened wear of journals, of locomotives and cars by comparative freedom from dust, greater duration of the cross-ties, and reduction in cost of labor required to maintain the surface and alignment of the track. The completion of the ballasting will give you a roadway and track equal in excellence to any in the South.

"A recent careful inspection of the Chattahoochee bridge, the principal structure in the roadway, discovered no change in any particular from its condition at the date of the previous report. The structure is sound and of ample strength.

The freight departments of this road and the Central Railroad in this city (Atlanta) were united on the 1st inst. This gives a needed relief to the Georgia Railroad yard, which we have jointly occupied with that company from the commencement of our business. This change will also relieve the city from the passage of our freight trains across the most crowded of our thoroughfares, and thereby lessen our liability to losses from accidental injury to persons.

"The outfit has been well maintained during the past year, and the operations of the property have been conducted with prudence and skill, as is attested by entire exemption from accidents to trains or passengers."

#### Flint & Pere Marquette.

The lines owned and worked by this company at the close of its last fiscal year, Dec. 31, 1883, were as follows:

	Miles.
Main Line, Monroe, Mich., to Ludington.....	253.34
East Saginaw & Bay City Branch.....	12.35
East Saginaw & Mt. Pleasant Branch.....	15.02
South Saginaw Branch.....	4.65
Harrison Branch.....	29.41
Otter Lake Branch.....	19.54
Manistee Branch.....	26.53
Total.....	361.31

There are 175.07 miles of sidings (an increase of 36.35 miles), making a total of 536.38 miles of track, of which 341.31 miles are laid with steel. Additions to main line during the year were an extension of 14.41 miles to the Harrison Branch.

The equipment consists of 70 locomotives; 53 passenger, 6 parlor, 5 sleeping and 15 baggage, mail and express cars; 1,058 box, 8 stock, 923 flat and 38 caboose cars; 1 directors' car, 3 snow-plows, 16 service cars, 106 hand and 82 horrie cars. Additions included 9 passenger, 1 parlor, 1 directors'; 225 box, 72 stock and 6 caboose cars; 1 snow-plow, 21 hand and 7 horrie cars.

Besides the above equipment there are also 2 locomotives, 2 passenger cars, 1 baggage car and 25 freight cars of 3 ft gauge on the Saginaw & Mt. Pleasant Branch.

The general account is as follows, condensed:

Stock.....	\$6,500,000.00
Bonds.....	5,197,000.00
Premium on bonds sold.....	154,596.25
Avails of land sales.....	836,000.00
Accounts and balances.....	501,738.16
January dividend.....	227,500.00
Profit and loss.....	69,367.53
Total.....	\$13,506,231.94
Road and property.....	\$12,326,385.75
Steamers, stocks, advances, etc.....	761,622.64
Materials.....	193,634.48
Accounts and balances.....	112,422.03
Cash.....	112,147.04
	13,506,231.94

The funded debt includes \$300,000 Flint & Holly lease bonds; \$75,000 Bay County bonds; \$1,000,000 Holly, Wayne & Monroe bonds; \$3,522,000 general mortgage bonds; the interest charge being \$346,820 yearly. During the year \$172,000 of the 6 per cent. general mortgage bonds were sold, and the last of the old land-grant bonds, \$3,000 in amount, were sold.

The Land Department reports sales of 6,356 acres of land

for \$54,265; town lots for \$2,465 and timber for \$6,000. The expenses were \$17,658. At the close of the year there were held 103,619 acres of unsold land and land notes amounting to \$568,104.

The traffic for the year was as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Train miles.....	740,760	740,760		
Passenger.....	1,048,496	994,325	I. 54,171	5.5
Freight.....	32,213,590	29,543,275	I. 2,670,315	9.0
Other.....	744,877	1,137,589	I. 392,712	26.8
Total.....	2,531,525	2,139,858	I. 391,667	18.3
Pass. carried.....	1,048,496	994,325	I. 54,171	5.5
Passenger-miles.....	32,213,590	29,543,275	I. 2,670,315	9.0
Tons fr. carried.....	1,442,884	1,137,589	I. 305,295	26.8
Ton-miles.....	123,112,615	92,953,733	I. 30,158,882	32.4
Av. train load:				
Passengers, No.....	43			
Freight, tons.....	118			

Lumber, logs and other forest products constituted 68.88 per cent. of the total tonnage; grain and flour 8.57 and salt 6.99 per cent.

The average earnings per train-mile were \$1.42, the expenses \$0.97, and the net earnings \$0.45. These earnings show an increase.

The earnings for the year were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Freight.....	\$1,610,511	\$1,317,042	I. \$293,469	22.3
Passengers.....	874,041	795,839	I. 78,202	9.9
Mail and express.....	34,215	30,017	I. 4,198	8.4
Miscellaneous.....	3,577	2,325	I. 1,252	54.3
Total.....	\$2,542,244	\$2,165,219	I. \$377,025	17.5
Expenses.....	1,735,518	1,432,209	I. 303,309	21.2
Net earnings.....	\$807,426	\$733,010	I. 74,416	10.2
Gross earn. per mile.....	7.330	6.241	I. 1.089	17.5
Net earn. per mile.....	2.328	2.113	I. .215	10.2
Per cent. of exps.....	68.25	66.15	I. 2.10	

The earnings, both gross and net, are the largest ever reported for this road. The mileage was substantially the same in both years, the addition not having been completed until just at the close of the year.

The expenses were divided as follows:

	Amount.	P. c. of total gross exps.	P. c. of earn. g.
Maintenance of way and buildings.....	\$338,639	19.50	13.31
Locomotive power and cars.....	272,570	15.71	10.72
Conducting transportation.....	910,786	52.48	35.82
General expenses.....	213,523	12.31	8.40
Total.....	\$1,735,518	100.00	68.25

General expenses include taxes, which were \$64,922 last year. Besides the expenses, payments for new construction were \$342,619, and for new equipment \$227,907.

The result of the year was as follows:

Net earnings as above.....	\$807,426.29
Interest on bonds and loans.....	\$329,004.16
Less interest and dividends on assets.....	11,067.00
Total interest account.....	\$317,937.16
Dividends, 7 per cent.....	455,000.00
	773,027.16
Balance, surplus for the year.....	\$33,799.13
Balance, Jan. 1, 1883.....	35,613.52
Income account, balance, Dec. 31, 1883.....	\$69,412.65

Renewals and improvements during the year included 3,154 tons of steel rails, 104,286 new ties, new fences and extensive repairs to bridges. A number of trestles, 3,698 ft. in all, were replaced by culverts and solid filling. Some work was done in reducing grades and other similar improvements were made.

#### Rutland.

This company owns a line from Bellows Falls, Vt., to Burlington, 120 miles, and leases the Addison road, from Leicester Junction, Vt., to Ticonderoga, N. Y., 16 miles. The whole property is leased to the Central Vermont Co. at a yearly rental of \$258,000. The report for the year ending June 30 relates only to the financial affairs of the company and has no statements of the traffic or earnings of the road.

The balance sheet, condensed, is as follows:

Common stock.....	\$2,480,000.00
Preferred stock.....	4,000,000.00
Funded debt.....	3,002,100.00
Accounts and balances.....	13,775.02
Income account, balance.....	66,814.37
Total.....	\$9,563,259.39
Construction accounts.....	\$9,005,621.19
Real estate.....	115,925.87
Addition R. R. stock.....	332,800.00
Deficiency, late Treasurer.....	49,849.88
Accounts receivable.....	41,681.44
Cash.....	17,411.02
	9,563,259.39

The funded debt consists of \$1,500,000 first mortgage 6 per cent. bonds, \$1,500,000 second mortgage 5 per cent. bonds and \$2,100 old equipment bonds not presented for exchange or payment.

The income account for the year is as follows:

Treasurer pro tem. receipts, July, 1883.....	\$58,280.84
Payments.....	18,032.60
Balance paid over.....	\$40,248.24
Rental of road.....	229,000.00
Dividends, Addison stock.....	10,008.00
Temporary loans.....	144,500.00
Sundry accounts.....	2,225.50
Total.....	\$425,981.84
Interest on bonds.....	\$163,154.50
Temporary loans, interest, etc.....	213,543.66
Taxes.....	6,055.15
Bonds paid.....	2,195.00
Salaries and expenses.....	8,622.52
Rental of Addison R. R.....	15,000.00
	408,570.83
Balance, cash on hand, June 30, 1884.....	\$17,411.01

The President's report says: "The receipts and disbursements for July, 1883, are given separately, as belonging to the old administration.

"The floating debt of \$67,218, existing at the time the present board took the road, has been paid, and the dividend declared July 2, payable the 28th instant, will be paid wholly out of the earnings of the company, and no debt be created therefor.

"The item of taxes is unusually large, owing to the new tax law, which imposes a tax upon the basis of gross earnings; and, in case of leased roads, provides that the lessee shall pay the tax, and may deduct the amount thereof out of the accruing rent. This law presents the anomaly of reducing the actual amount of rent as the earning power of the leased road increases, and gives to the lessee the entire benefit of such increase. As the law was passed after our lease was made, it is questionable whether it is constitutional in its application to the leased property.

"The deductions for taxes have been made by the lessee and the checks for the balances of rent have been accepted

by our Treasurer, expressly reserving all questions as to the right of the lessee to make such deductions and without prejudice.

"Besides the deficiency in the cash as shown by the books there are various matters of claim against former officers of the company, as will be seen in part by the report of the committee of investigation. Actions against the former president and the former treasurer are now pending for the recovery of what may be due the company from them.

"The suit in equity of the company against Clement & Sons and others, for the surrender of certificates of preferred stock, which the company claims to be invalid, is in process of litigation, in accordance with the resolution of the stockholders, passed at the last annual meeting. The evidence is nearly in, and the case will probably be soon completely made up for hearing before the Court of Chancery. Upon appeal by either party from the decree of the Chancellor the case will be taken to the Supreme Court, and, in such event, it is likely to be ordered for argument before the full bench at Montpelier, in October, 1885."

#### Detroit, Lansing & Northern.

This company operates a main line from Detroit, Mich., to Howard City, 180.60 miles; the Belding Branch from Kildville to Belding, 1.67 miles; the Stanton Branch, from Stanton Junction to Big Rapids, 63.30 miles; the Saginaw & Western (leased and practically owned), from St. Louis to Lakeview, 34.50 miles; a total of 260.07 miles. There are 76.97 miles of sidings and lumber spurs. The report is for the year ending December 31.

Of the main line three miles, from Detroit to Grand Trunk Junction, and one mile, from Lansing to North Lansing, are leased from the Michigan Central Co.

The Saginaw & Western road was added last year, having been worked from July 1, as stated below.

The general balance sheet, condensed, is as follows:

Common stock.....	\$1,823,000.00
Preferred stock.....	2,510,000.00
Saginaw & Western stock.....	4,000.00
Funded debt.....	3,702,000.00
Accounts and balances.....	255,083.19
Income account.....	210,938.64
Total.....	\$8,507,021.83
Road and equipment.....	\$7,479,298.11
Saginaw & Western R. R.....	479,751.98
Sinking funds.....	147,086.63
Other property accounts.....	147,282.42
Materials.....	50,792.91
Accounts and balances.....	55,205.57
Cash.....	148,193.97
	8,507,021.83

The funded debt consists of \$770,000 Ionia & Lansing first mortgage 8 per cent. bonds; \$2,487,000 general mortgage 7 per cent. bonds and \$445,000 Saginaw & Western 6 per cent. bonds. The Saginaw & Western bonds were added last year.

The traffic for the year was as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Train miles.....	433,543	394,903	I. 38,640	9.8
Passenger.....	732,868	717,290	I. 15,578	2.2
Freight.....	380,036	316,253	I. 63,783	20.2
Service and switching.....				
Total.....	1,546,447	1,428,446	I. 118,001	8.3
Passenger car miles.....	1,455,621	1,357,757	I. 97,864	7.2
Freight car miles.....	10,180,948	10,702,572	D. 521,624	5.4
Passengers carried.....	700,834	635,473	I. 65,361	10.3
Passenger miles.....	17,130,528	15,858,122	I. 1,272,406	8.1
Tons freight carried.....	646,804	743,908	D. 97,134	13.1
Ton-miles.....	61,732,236	65,277,685	D. 3,545,449	5.4
Av. train load:				
Passengers, No.....	40	40		
Freight, tons.....	84	91	D. 7	7.7
Av. receipt:				
Per passenger mile.....	2.040 cts.	2.580 cts.	I. 0.050 ct.	1.9
Per ton-mile.....	1.701	1.739	I. 0.022	1.3

Of the freight car mileage 64.4 per cent. was of loaded cars. Locomotive service cost 18.63 cents per mile run. Of the tonnage carried lumber and forest products furnished 69.68 per cent. The earnings per train mile were \$1.37, the expenses \$0.91 and the net earnings \$0.46.

The earnings for the year were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Freight.....	\$1,050,015	\$1,136,868	D. \$86,853	4.1
Passengers.....	452,778	410,712	I. 42,066	10.2
Other.....	53,652	49,563	I. 4,089	8.2
Total.....	\$1,556,445	\$1,597,143	D. \$40,698	
Expenses.....	1,058,570	1,136,061	D. 77,491	6.8
Net earnings.....	\$537,875	\$461,082	I. \$76,793	16.7
Gross earn. per mile.....	6.575	7.080	D. .505	7.1
Net.....	2.215	2.044	I. .171	8.5
Per cent. of exps.....	68.31	71.13	D. 4.82	

There was a slight decrease in gross earnings, but the net earnings are the largest ever reported. Included in expenses are \$161,339 for improvements and new equipment, and \$38,129 for taxes.

The income statement is as follows:

Net earnings for the year.....	\$537,874.05
Interest paid (less \$4,965.25 int. rec'd).....	\$243,369.07
Dividends, preferred stock, 7 per cent.....	175,700.00
" common " 6 per cent.....	109,530.00
	528,569.07
Surplus for the year.....	\$9,274.98
Balance from 1882.....	59,048.66
Balance, Jan. 1, 1884.....	\$68,323.64

The General Manager's report states that last year 3,208 tons of steel rails were used in renewals and 65,354 new ties were put in the track. The complete renewal of the main line with steel rails will be completed during the current year. The replacing of wooden bridges with iron, the filling in of trestles, and other improvements are continued. The new shops at Ionia are completed with the exception of a wood machine shop.

A branch road 6.6 miles long, from Rodney to Chippewa Lake was built, securing to the road a large amount of pine timber. On May 10, 1883, the road known as the Chicago, Saginaw & Canada, was sold under foreclosure and purchased in the interest of this company. A new company was organized under the name of the Saginaw & Western, and on July 1 the road was leased to the Detroit, Lansing & Northern for a term of 30 years, at a rental of 6 per cent. on the bonds and 7 per cent. on the stock. The lease of this road secures to this company the traffic of a considerable territory and unites it with the Saginaw Valley & St. Louis road, which is controlled by this company. The Saginaw & Western road extended from St. Louis, Mich., to Lake View, 34 1/2 miles, but the line has since been shortened 2.7 miles by the building of a cut-off one mile in length at Alma, so that the length of track now operated is reduced to 31.8 miles. The newly leased line is in fair condition, but some improvements will be necessary during the current year.

The General Manager estimates that for 1884 only ordinary renewals will be required except that considerable additions are needed to the passenger equipment, which have been partially provided for by ordering four new passenger cars from the Pullman Co. at a cost of about \$30,000 in all.





Published Every Friday.

## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## UNITED STATES RAILROADS IN 1883.

Poor's Manual for this year is to be issued to-morrow. From advance sheets of the very valuable introduction, containing tables of statistics of the whole system of railroads in the United States, we are able to present the following general view of their financial position and operations. It will be borne in mind that what is called the year 1883 in these statistics is the last fiscal year reported by the several companies, which for not a few is the year to June 30, 1883; for a very large number, including nearly all New York and New England roads, is the year ending with September last, while for a few the last year given in the Manual ended with some month in 1884. On the average the year probably ended sometime before the end of 1883, which is important to consider when there is a change in the condition of business and the course of railroad earnings.

We publish elsewhere the text of the introduction of the Manual, with a table showing the finances and operations of the United States railroads, by groups of states, for four successive years, which gives some very valuable information. We also discuss elsewhere the course of railroad construction for the past four years, also based on the tables of mileage given in the introduction to the Manual.

Compared with the previous year the Manual finds an increase of 5.6 per cent. in miles completed at the end of the year, and of 5.3 per cent. in the mileage reporting operations. Then the capital is given as follows:

	1883.	Inc. over 1882.	P. c.
Stock.....	\$3,708,060,583	\$207,024,759	5.9
Funded debt.....	3,455,040,383	219,497,060	6.8
Other debt.....	332,370,345	61,199,383	22.6
Total.....	\$7,495,571,311	\$487,721,202	7.0

The increase in the stock and debt is seven per cent., while the increase in mileage is 5.3 per cent. The reported capital per mile has varied from year to year as follows:

	1879.	1880.	1881.	1882.	1883.
	\$57,730	\$58,624	\$60,045	\$61,303	\$62,176

Notwithstanding the enormous new mileage, most of which has cost much less than the average of the old mileage (but some of it much more), the average cost per mile has increased yearly, and is now \$4,446 more than in 1879. Doubtless a very large part of this is due to an injection of water, some of the new roads (as the New York, Chicago & St. Louis) having an enormously excessive capitalization, but a great deal, and much more than many suspect, is due to great additions that have been made to the property of old roads aside from in-

crease in mileage. The Pennsylvania Railroad Company, for instance, has added nearly \$30,000,000 to its share capital since 1879, and something to its funded debt, with very little increase of mileage. But all the new stock represents absolute additions to the property, paid for with cash. Very large additions have been made to many railroads since 1879, the same causes that occasion the construction of new railroads also occasioning the improvement of old ones. We may get some idea of this from the fact that while the Manual reports the operations of 37 per cent. more miles of railroad for 1883 than the United States census for the fiscal year nearest June 30, 1880, these roads in 1883 had 37 per cent. more locomotives, 45 per cent. more passenger cars, 33 per cent. more baggage, mail and express cars, and no less than 64 per cent. more freight cars. Usually in nothing is the inferiority of the new to the average old road more marked than in the lightness of its equipment. This has been true of late years as well as formerly, doubtless, but the increase of equipment on the old roads has brought up the average per mile beyond that of any previous year. By the Census, for every 100 miles of railroad there were (about the middle of 1880) 19.8 locomotives, 14.1 passenger cars and 518.8 freight cars; by the new Manual there were (near the end of 1883) 19.8 locomotives, 14.9 passenger cars and 621 freight cars. Even this does not sufficiently represent the increase in the carrying power, for this has been a time of increasing the weight and power of locomotives and the capacity of freight cars, so that the average effectiveness of each is now much greater than it was a few years ago.

Now in most cases a larger equipment requires more sidings and second tracks, yards, storehouses, etc., and any one who has watched the construction accounts of the railroads for a few years past will not need to be told that expenditures for such purposes by established companies have been very great.

We have dwelt on this point because it will be a mistake to charge the whole increase of capital of the railroads of the country to the increase in mileage and to "water." A very large part of it has gone to transform poor railroads into good ones, and good railroads into better ones.

The tables of the Manual show that while the roads reporting operations had 14 per cent. more passenger traffic and 12 per cent. more freight traffic than the year before, per mile of road worked the increase was but 2 per cent. in passengers and  $\frac{1}{2}$  per cent. in freight. The increase of 10 per cent. in passenger earnings was less than the increase in mileage, that of 12 per cent. in freight earnings a very little more, and the increase of 10.9 per cent. in total gross earnings a little less. The net earnings increased 10 per cent., the interest payments 19 per cent. and the dividends  $\frac{1}{2}$  per cent. The increase in interest payments was slightly more than the increase in net earnings.

A comparison between some of the figures shown by the Manual for the end of 1883 and those of the census for the middle of 1880—an extraordinarily prosperous year—will be significant:

	Manual. 1883.	Census. 1880.	P. c. of Inc.
Miles of road.....	120,552	87,782	37.5
Capital stock.....	\$3,708,060,583	\$2,613,006,204	42.0
Per mile.....	30,760	30,117	2.1
Funded debt.....	3,455,040,383	2,390,915,402	44.5
Per mile.....	28,680	27,551	4.0
Other debt.....	332,370,345	421,200,894	D. 21.0
Per mile.....	2,757	4,854	D. 43.3
Total capital.....	7,495,571,311	5,425,722,500	38.0
Per mile.....	62,177	62,522	D. 0.5
Miles worked.....	110,414	86,781	26.4
Earnings:			
Passenger.....	\$215,287,824	\$144,101,700	49.4
Freight.....	549,756,695	416,145,758	32.1
Other.....	58,728,405	20,203,127	190.0
Total.....	\$823,772,924	\$580,450,584	42.0
Per mile.....	7,461	6,688	11.5
Expenses.....	525,405,639	352,800,120	49.0
Per mile.....	4,758	4,065	17.0
Net earnings.....	298,367,285	227,650,474	31.0
Per mile.....	2,703	2,623	3.0
Interest.....	173,139,064	126,442,310	37.0
Dividends.....	102,052,543	70,550,343	44.6

These are astounding changes to have occurred within  $3\frac{1}{2}$  years. The greater completeness of the Census lessens some of them, but increases others. The Census had reports of the operations of all but about 1,000 miles of the roads whose capital it gives; Poor's Manual for nearly 10,000 miles less. The roads not given are likely to be those that had not been in operation a year when the report was made, and that had much less than the average earnings and profits. If they had been included, the total earnings and expenses for 1883 would have been materially greater than are given above; the amounts per mile considerably less.

We see from these figures that the mileage of the railroads of the country increased three-eighths in the  $3\frac{1}{2}$  years, their capital stock three-sevenths (\$1,095,000,000), their funded debts  $\frac{1}{2}$  per cent. (\$1,059,000,000). But their gross earnings increased three-sevenths (\$243,320,000), and their net earnings five-sixteenths (\$70,700,000). The rate of increase in expenses was so

much greater than that in earnings as to absorb 70 per cent. of the increase in earnings, the percentage of expenses having increased from 60.8 to 63.8.

The population of the country meanwhile increased from 50 millions to 56 millions, so that per inhabitant there was:

	1883.	1880.
Capital.....	\$86.21	\$52.27
Stock.....	61.70	47.80
Bonds.....	5.93	8.42
Other debt.....		
Total capital.....	\$133.84	\$108.49
Earnings:		
Passenger.....	3.94	2.88
Freight.....	9.82	8.32
Total.....	14.71	11.61
Net.....	5.93	4.55
Payments:		
Interest.....	3.09	1.53
Dividends.....	1.82	1.41
Total.....	\$4.91	\$2.94

These seem like very small figures, but they are nevertheless a very considerable proportion of the average wealth and income. It seems that the railroad capital per individual has increased \$25.35 (23 per cent.) in the  $3\frac{1}{2}$  years; the average payment per individual from railroad transportation has increased from \$11.61 to \$14.71 (26 $\frac{1}{2}$  per cent.), and the part of that payment which goes for interest on the capital invested from \$2.94 to \$4.91 (67 per cent.). The latter was but 25 per cent. of the whole expenditure for transportation in 1880; last year it was 33 $\frac{1}{2}$  per cent. of it.

While the total expenditure for railroad transportation per individual may not seem large (\$14.71), it is very much greater than in any other country on the globe. In Great Britain, where railroad traffic is heaviest, and where an exceptionally large proportion of it is paid for by other countries (because a larger proportion of the traffic than elsewhere is export freight), the earnings are about \$9.30 per inhabitant—37 per cent. less than here, and there the increase is very little greater than the increase in population. In Germany it is only about \$4.95 per inhabitant.

Of course it will not be possible for us here to continue indefinitely to increase our average individual expenditure transportation at this recent rate of nearly 8 per cent. yearly, any more than for other purposes. And without doubt the next three years will show no such increase as that given above. Figures for a year ending at this time would doubtless show that the growth had already been arrested. For mileage, cost and capital it was full time; for earnings and profits it will be a very painful process if it lasts long.

## FOUR YEARS OF RAILROAD CONSTRUCTION.

I.  
Year after year, since 1879, we have dwelt upon the excessive amount of railroad construction, so much so, doubtless, as to weary some, and disgust others who saw in the great extension of railroads nothing but good for the community. "The country is growing so fast that there will soon be business enough for them all," has been the common answer to all warnings that the construction was excessive and could not continue at so rapid a rate without great injury to the country. In reviewing the year 1880, at the close of the year, we said: "We may safely say that the construction now is at a rate which cannot possibly be kept up for many years without grave disaster." During that year 6,956 miles of new railroad had been opened; in 1881, 9,789 miles; in 1882, 11,596 miles; in 1883, according to the just-issued "Poor's Manual," 6,755 miles. Thus from the end of 1879 to the end of 1883, four years, the railroad system of the country was increased 35,096 miles, from 86,497 to 121,593, or 40 $\frac{1}{2}$  per cent., while in the nine years from 1871 to 1879, which included the year of largest construction down to 1881, the miles constructed were 33,590; and in the other four years of extraordinary construction, from the end of 1868 to the end of 1872, 23,360 miles were constructed. This latter, however, was a larger percentage of increase than that of the last four years—60 per cent. against 40 $\frac{1}{2}$ . It takes 12,000 miles to make an increase of 10 per cent. now, while 8,940 sufficed in 1869.

The simple statement that we have added 35,000 miles to our railroad system within the last four years ought of itself to suffice to explain many of the difficulties of the present industrial situation. This country has been increasing in population, production and wealth with extraordinary rapidity; but it has not increased 40 per cent. in any four years, however prosperous they may have been.

The population of the United States at the close of 1879 was about 49 $\frac{1}{2}$  millions; at the end of last year it was about 56 millions, having increased (with unprecedented immigration) about 13 per cent. while the railroad mileage was increasing 40 $\frac{1}{2}$  per cent. The population per mile of railroad was 572 at the beginning of 1880, and 400 at the beginning of this year. A



few manufacturing interests have kept pace with the railroads, doubtless, so far as capacity for production is concerned; but it is simply impossible for the aggregate production of the country to increase anything like 40 per cent. when the increase in population has been but 13 per cent. In fact, the acreage under cultivation increased not more than 10 per cent. in the last four years, and agriculture is by far the most important industry of the country.

Of course the 35,000 miles of new railroad built since 1879 have absorbed an enormous amount of capital. Mr. Poor gives \$30,000 per mile as a liberal estimate of their cost. It is very doubtful whether this is sufficient, for though the larger part of the new road was cheaply built and lightly equipped, an unusual amount was exceptionally solid and costly; and scarcely any was as poorly built as most of that constructed before 1874. Since that time the American railroad ideal has changed vastly for the better, and the standard of construction is much higher now, the conviction having become universal that a very poor road is very costly to work. Further, before 1874 comparatively a small part of the new road was built by old companies, and a very large part by people who expected to secure a profit from the sale of the securities issued in payment for construction, and cared comparatively little whether the working of the roads should be profitable or not. The railroads opened since 1879 have, with comparatively few exceptions, been built by people who expected and intended to make money out of their operation, and mostly by established railroad companies, notwithstanding the apparent recklessness in the extent of the new work undertaken.

"Many" years have not elapsed, but only four, since we said that the rate of construction of 1880 could not be kept up many years without grave disaster. Probably no one will contradict that statement now. The headlong pace was reduced in 1883, when the addition was nearly 5,000 miles less than in 1882. This year it has been further checked, and we have found so far in 1884 the construction to be 40 per cent. less than last year and the smallest since 1879. If the same ratio with last year is preserved throughout the year we shall build in 1884 only about 4,050 miles of railroad, which will still be an increase of  $3\frac{1}{4}$  per cent. and more than the increase of population. What would be the result if in the four years from 1883 to 1887 we should again add 40 per cent. to our mileage, making it 170,800, or even another 35,000 miles? A very grave disaster, indeed, without any doubt. It would probably be quite impossible to do it, however we might attempt it. Certainly it would be impossible without a great deal of assistance from European capital, of which we have had comparatively little for the construction of the 35,000 miles opened since 1879, though doubtless much more than many suspect, or than appears from the loans placed abroad publicly (which have been insignificant). Foreign capital has come to our aid by investing in the securities of old companies, which has enabled the former American holders to invest in the new enterprises. But it is evidence of the growing wealth of this country that the chief part of the capital invested in this enormous mileage of new roads was American capital, while at the same time a very large amount, the extent of which few appreciate, was expended on the improvement of old roads and providing them with additional equipment. Then, too, there was an unprecedented amount of other building, and a great investment in new manufactories; and with all this our capitalists thought the field too small, and invaded Mexico, where they have established the beginning of a considerable railroad system.

It is evident that traffic cannot have increased at the same rate as railroad mileage for the past four years. This is not necessarily disastrous, for the new road may not and probably will not require as much as the average traffic of the old roads to support it adequately. But the new roads are not by any means all built where they depend wholly upon a new development of traffic to support them. Much has been said of the vast extent of new country developed by the new railroads, and it is largely true. But a very large mileage has been built in districts already well supplied with railroads, and where the growth of traffic is at the moderate rate of an old country and not at the very rapid rate of a new one in which most of the fertile land is still unoccupied. In these districts already well supplied the new railroads are likely either to fail of support or to get it at the expense of the older railroads, of both of which we have many examples now. It is not possible to decide off-hand when a state is sufficiently supplied with railroads, it is true; and the rapid development of certain industries may require considerable additions to the

system of an old state theretofore well served; but there are many instances where it is easy to see that the supply of new railroads has been much greater than the growth of traffic can have required. Indeed, growth of traffic can hardly be said to require additions to the mileage of railroads, but rather improvements of them and additions to their rolling stock. It is the development of traffic in new localities that requires new railroads.

It is then desirable to know where the construction has been most rapid in recent years. A great extension of railroads in an undeveloped country may not be in excess of the wants of the country as soon as it is developed, and so may justify itself, unless the development is unexpectedly slow—as sometimes happens. A great extension in a country already well developed and no longer growing rapidly is much less likely to succeed without injury to the railroads previously established there.

Below we give the mileage in different groups of states at the end of the years 1879 and 1880, and the increase for the four years:

	1883.	1879.	Increase.	P. c.
New England .....	6,231	5,603	328	5.6
Middle States (N. Y., N. J., Pa., Del. & Md.) .....	17,800	14,985	2,815	19.2
South Atlantic States: (Va., N. C., S. C., Ga. & Fla.) .....	10,004	7,521	2,483	33.0
South of the Ohio: (W. Va., Ky., Tenn., A. Miss. & E. La.) .....	8,847	7,147	1,700	24.0
North of the Ohio: (O., Mich., Ind., Ill. & Wis.) .....	30,978	24,004	6,974	29.0
N. W. Miss. Valley: (Minn., Dak., Ia., Neb., Mo. & Kan.) .....	24,896	16,664	8,232	49.4
S. W. Miss. Valley: (Ark., Ind. T., W. La. & Tex.) .....	9,104	4,033	5,071	126.0
Rocky Mt. Territory: (N. Mex., Ariz., Utah, Col., Wy., Mon. & Id.) .....	9,344	3,524	5,820	165.0
Pacific States: (Cal., Or. & Wash.) .....	4,329	2,716	1,613	60.0
Total .....	121,593	86,497	35,096	40.5

We see here that the increase in railroads since 1879 has been very slight in New England, much less than the rate in the rest of the country, but still very great (19 per cent.) in the other North Atlantic States; nearly one-third in the South Atlantic States; 29 per cent. in the five States north of the Ohio and east of the Mississippi—a country which but recently was "the West," but now increases little in agricultural population and production, but rapidly in manufactures and town population; that in the states south of the Ohio and east of the Mississippi (which have been exceptionally prosperous for five or six years past) the increase has been much less than the average (24 per cent.); but that in all the groups west of the Mississippi the gain has been enormous. It has been nearly 50 per cent. in the six northern states next west of the Mississippi, amounting to 8,232 miles; in the corresponding states south of them (Southwest Mississippi Valley), it has been 5,071 miles (126 per cent.); in the vast plains and mountain country thence to the Pacific States it has been 5,820 miles (165 per cent.), and in the Pacific States 60 per cent. The mileage east and west of the Mississippi has been:

	1883.	1879.	Increase.	P. c.
East of Mississippi .....	74,080	59,744	14,345	24.0
West .....	47,504	26,753	20,751	77.6
Total .....	121,593	86,497	35,096	40.5

Thus nearly three-fifths of the mileage constructed since 1879 is west of the Mississippi, where the system has been increased more than three-fourths in four years, by an amount greater than the whole mileage of the United Kingdom; and no less than 15,028 miles of the increase has been west of the states which lie on the Mississippi, and so are in a territory which but very recently was a wilderness. Never before in the history of the world was so vast a territory made accessible in so short a time.

A discussion of the construction in the different districts, and some comparisons with the mileage built in previous years, and some remarks on the probable effect must be left for next week.

#### The Ventilation of Passenger Cars.

We print on another column a letter from Captain W. D. Mann, of the Mann Boudoir Car Company, on the subject of the proper ventilation of passenger cars. Though the subject of ventilation is probably as old as the first human habitation, it is still a subject on which many different opinions are resolutely held and ably defended. The special question of applying a good system of ventilation to the cars of a train running at varying speed through an atmosphere generally overcharged with dust and cinders, is by no means the easiest problem in ventilation.

Those who rode in the Mann car during the recent Master Mechanics' and Car-builders' conventions could not have failed to notice that the atmosphere in the Mann car was decidedly cooler and more pleasant to breathe than the air in the other cars running on the same train, though the other cars were new, and in

good condition, and were the best of their several kinds. These results were effected by the means described in Captain Mann's letter, and we trust that practical trial will show that this ingenious method works equally well in all the very varying circumstances under which a car runs. It may, however, be doubted whether any system of ventilation which involves the consumption of a large quantity of ice, and takes up an appreciable amount of valuable space, can ever be applied to ordinary passenger cars and enjoyed by passengers paying ordinary fares. In these days, when many railroads can hardly pay the interest on their bonds and the wages of their men, we can hardly expect them to sacrifice much money on ventilation. It is desirable that any device now introduced on railroads should cost but little to buy and still less to maintain.

We cannot agree with Captain Mann that the downward slope of the platform roof favors a deposit of cinders on the platforms, much less on the upper part of the end windows. The cinders, being heavier than the air, have a tendency to fall after they have once acquired a downward direction, and when they have passed under the lower edge of the platform roof, have little tendency to rise again. It is obvious, therefore, that the lower the roof the less the possibility of the cinders rising to the point where the air is taken in, just under the platform roof. This is shown in a small diagram which we have printed adjoining Captain Mann's letter.

While a wire screen cannot arrest dust as distinguished from cinders, it is undoubtedly useful, though it cannot purify the air as perfectly as the more expensive appliances used in the Mann car. No objection can be urged against the wire gauze on the ground of expense. The air is baffled by the wire screens and cannot enter as fast as the train is going, but this is precisely what is required. The small mesh throttles the air, so that at a high speed but little more air can enter than at a low speed. However great the crowd behind a wicket gate, but one person can enter at a time, and the wire screen serves a somewhat similar purpose. It is certainly desirable that the admission of air should be uniform at all speeds, and not be greatly increased by a high rate of speed.

The frightful Penistone accident, which occurred in England on July 16, has been already reported in these columns. Fuller accounts since received state that, as we surmised, the train left the track owing to the breakage of the crank axle on an inside-connected locomotive. It is to be hoped that this accident will check the further use of such a weak form for one of the most important parts of an engine. As over 200 crank axles break every year, English locomotive designers have received, but unfortunately disregarded, ample warning of an impending disaster. Hitherto they have urged that few lives have been lost by the numerous failures of crank axles, but this reasoning can no longer avail. This accident has cost the lives of 25 passengers, while during the preceding twelve months but 14 passengers in all lost their lives on British railroads from causes beyond their own control. Collisions and bridge disasters have been generally the causes of swollen death rolls, and there are probably but three or four cases on record where the failure of any part of a locomotive has caused the loss of over twenty-five lives.

The train consisted of an engine and tender, a horse-box, and nine passenger coaches, and was proceeding around a sharp curve at the usual high rate of speed, when the crank axle broke just as the train was nearing a stone bridge. The engine, tender and horse-box kept the road, and went on for some 400 yards plowing up the line and breaking the chairs as they passed. One of the rails was wound round a tender axle, and penetrated two feet into the tank. The coupling between the horse-box and the first passenger coach broke, and the nine passenger cars, leaving the rails, were hurled over the embankment close to the bridge, where they were overturned and completely wrecked. It was soon discovered that some twenty persons were killed and at least thirty injured, many of whom have since died. The engineer and fireman escaped without a scratch. The train was fitted with Smith's vacuum brake, which of course was rendered useless when the coupling broke. It seems probable that an automatic brake, which would have held the wheels, might have saved some lives. While, however, the use of an automatic brake would probably have mitigated the results of the accident, the use of a sensible, plain driving axle would, in all human probability, have entirely prevented the occurrence of any accident whatever.

It is especially melancholy that one of those that perished in the great accident at Penistone, England, was Mr. Massey Bromley, who had as a locomotive



superintendent of an English line done much to promote the use of outside cylinder engines, and the Westinghouse automatic brake. Like poor Howard Fry, he perished owing to the absence of the safeguards which he advocated. Mr. Bromley had many friends in this country, which he visited during the Centennial. On his return he introduced many American features into the engines on his line, some of which have been illustrated and described in these columns. He was an engineer of wonderful energy and force of character, with an unusual power of acquiring and storing information, and after leaving the Great Eastern Railway was rapidly building up a practice as a consulting engineer and scientific witness, when his career was thus cut short. It is no mere figure of speech to say that Mr. Bromley was beloved by all who knew him, especially by those serving under him, possessing as he did all the prime requisites to secure respect and allegiance. His decisions were fair, prompt, and never reversed. A question brought before him was settled at once, and was never delayed except when further information was absolutely necessary. While his reproof was sharp, his anger was brief and he bore no resentment. He took a personal interest in all his staff, visiting them when ill or injured, and never forgot that those under him were men and not machines. Mr. Bromley was a good and economical administrator, and, unlike most engineers, completed his university course at Oxford before using hammer and chisel, fire shovel and tee square. Rising through the various grades, at the age of 31 he had entire charge of the rolling stock of a large line.

Any engineers who have not received or responded to our circular on the subject of "Nut Locks, Even and Broken Joints, and Cross-Ties," will find the substance of our inquiries on page 503 of our issue of July 4, and are invited to forward the information there requested.

The movement of the new crop of wheat has begun, as shown by the receipts of the more southerly markets, which for the week ending July 19 were considerably larger than they had been. Until recently the markets further north, which receive spring wheat chiefly, have received most, and St. Louis but a small part of the whole. Thus the average weekly receipts of wheat from June 1 to 28, and the receipts in each of the three weeks following at St. Louis and at all the eight Northwestern markets have been, in bushels:

	Av. in June.	July 5.	July 12.	July 19.
N. W. markets	781,488	604,167	757,021	988,743
St. Louis	84,498	86,480	280,891	491,189
P. c. at St. Louis	10.8	14.3	37.1	49.7

The receipts at places other than St. Louis have fallen off in the last two weeks, but St. Louis received  $3\frac{1}{2}$  times as much as its June average in the week to July 12, and nearly six times as much the next week. St. Louis receives from Southern Illinois, just east of it, and from southern Missouri and Kansas. The Kansas crop has been ripe longest, but for this usually St. Louis has to contend with Chicago. So far, however, there is no sign that Chicago is feeling the new wheat crop. Not only is there no increase in its receipts, but these receipts are so small as to be insignificant, not having reached 100,000 bushels for four weeks, and sometimes being less than those of Duluth. Latterly the Northwestern wheat seems to have avoided Chicago and gone to Milwaukee, which latter place during the six weeks ending July 19, received 1,898,154 bushels, against 739,710 at Chicago. Toledo usually feels the winter-wheat movement sooner than Chicago, its principal railroad traversing the Illinois wheat district, but its wheat receipts have not increased, and remain small.

But while the wheat movement has begun it is very small in comparison with some other years. Thus the wheat receipts at the Northwestern markets for the third week of July for five successive years have been:

	1880.	1881.	1882.	1883.	1884.
	3,209,537	1,198,660	3,101,134	613,570	988,743

At this time the amount of the receipts is not determined solely by the abundance of the crop or its earliness. The supply in the East and in Europe has a great deal to do with it. If this supply is nearly exhausted the grain is likely to go forward freely as soon as it can be threshed, because it is needed; but if the consuming districts have a good supply on hand, which is the case now, the grain will not be hurried forward, however much there may be.

On the Atlantic coast an early movement of wheat is felt first at Baltimore, which in some years has had large receipts the second week of July, and very large ones by the end of the month. It cannot be said that its wheat receipts are large as yet, but they have increased.

The Mobile & Girard Railroad is one of the few remaining small roads of the South (85 miles long, from Columbus, Ga., southwest to Troy, Ala.), but is itself controlled by the Central of Georgia. It has no connection at its southwestern terminus, and is not in position to command much through traffic; but it has not been much interfered with by the new railroads built in the South, so its traffic might be expected to keep pace with the progress of the country along its line. The successive reports show that it did grow quite rapidly from 1876 to 1881, but that since that time its freight earnings have fallen off largely, while its passenger earnings

have been stationary. Thus for nine years they have been:

	Passenger.	Freight.	Both.	Expenses.	Net earn.
1876	\$29,575	\$106,157	\$135,832	\$115,604	\$20,227
1877	31,761	121,134	152,895	97,632	55,263
1878	33,031	142,542	175,573	112,274	63,298
1879	36,759	159,149	195,908	135,572	60,335
1880	43,607	181,102	224,709	149,335	75,374
1881	53,105	218,823	271,928	180,173	91,755
1882	54,963	210,089	265,052	209,568	55,484
1883	54,063	197,912	251,975	178,300	73,675
1884	53,546	184,036	237,582	191,989	45,593

Thus the passenger earnings have remained stationary since 1881, at a much higher level than in previous years, which is pretty good evidence of a larger population or greater prosperity, or both; but the freight earnings have decreased steadily since they reached their maximum in 1881, though not so much in the three years as they had increased in the single year from 1880 to 1881. The decrease seems to have been due chiefly to lower rates, which are constantly being forced down by circumstances in many parts of the country where the competition of other roads has little direct effect; but isolated and independent as this road seems, part of its loss is due to the diversion of through freight by other roads. The freight business of the Columbus station fell from \$129,218 in 1881 to \$88,341 in 1884, the decrease amounting to more than the whole decrease in freight earnings. This was largely due to the diversion of Northwestern business into Columbus.

This road, with the traffic of an old agricultural country very much to itself, earned but \$2,843 gross and \$585 net per mile last year, and in its most prosperous year made but \$3,245 gross and \$1,020 net. Yet the country on the line of the Mobile & Girard Railroad is populous much beyond the average of Alabama or the South, the three counties on its line having had an average population of 40 per square mile, against  $24\frac{1}{2}$  for the whole state, in 1880.

#### Record of New Railroad Construction.

This number of the Railroad Gazette contains information of the laying of track on new railroads as follows:

**Baltimore & Ohio.**—The Curtis Bay Branch is completed from Camden Junction in Baltimore to Curtis Bay,  $5\frac{1}{2}$  miles.

**Burlington, Cedar Rapids & Northern.**—Track on the Dakota Extension is laid from Lake Park, Ia., northward into Minnesota 20 miles.

**Chicago, Burlington & Kansas City.**—Extended from Grand River, Mo., south to Hale, 2 miles.

**Columbus & Cincinnati Midland.**—Track is laid from Columbus, O., southwest to Washington Court House, 45 miles.

**Danville & New River.**—Extended from Spencer, Va. west to Patrick Court House, 19 miles. Gauge, 3 ft.

**Duluth & Iron Range.**—Extended northward to Vermilion Lake or Tower, Minn., 28 miles.

**Union Pacific.**—The Stuart Branch of the Utah & Northern Division is completed from Stuart, Mon., to Anaconda, 9 miles. Gauge, 3 ft.

This is a total of 128 $\frac{1}{2}$  miles of new railroad, making 1,712 miles reported to date for the current year. The total track reported laid to the corresponding date for 13 years past is as follows:

	Miles.		Miles.
1874	1,712	1877	830
1875	2,761	1878	1,046
1876	5,473	1879	594
1880	2,924	1881	913
1882	2,525	1883	1,966
1879	1,187	1882	3,372
1878	941		

These statements include main track only, no account being taken of second tracks or other additional tracks or sidings.

#### Foreign Railway Notes.

Steam tramways—street railroads worked by steam, for the most part carrying freight as well as passengers—have become a very important part of the communication of some European countries of late years. In Italy, especially, they flourish. In Holland a recent report shows that there are in all 326 miles of tramways in 38 different lines, 17 of which are worked exclusively and four partly by locomotives, of which there are 181 in tramway service, besides 1,303 horses, 8 mules, 615 passenger cars and 252 freight cars. The average cost of the Dutch tramways has been about \$20,900 per mile. They are mostly laid with T rails, except where actually on the turnpike.

The St. Petersburg & Moscow Railroad ceased running buffet cars on its express trains at the end of last year, and has introduced a novel arrangement. On these trains, which carry only first-class passengers, 13 seats are reserved for "servants" of the passengers, and the purchaser of a first-class ticket is allowed to purchase a ticket for one of these seats at the second-class fare. It is suspected that the greater part of the tickets will be bought, not for servants of the first-class passengers, but for ordinary travelers, who will thus get an opportunity of traveling by express second-class. The "servant's" ticket cannot be bought separately, but only with a first-class ticket, and is sold only for the whole distance between St. Petersburg and Moscow, 406 miles.

In France a considerable number of local railroads have been built of the metre gauge (3 ft. 3 $\frac{1}{2}$  in.), and several are in progress. A German engineer, discussing them, says that one of the larger ones now in operation (about 19 $\frac{1}{2}$  miles long), passes through a hilly country, and in its favor the government requirements were relaxed so as to permit the use of curves of 100 metres (328 ft.) radius, and grades of 132 ft. per mile, though between stations the minimum curve employed is 984 ft. radius and the maximum grade 101

ft. per mile. T-rails weighing 40 lbs. per yard, are used on fir and oak cross ties. The road is worked with tank locomotives having six coupled wheels and a flexible axle "of the Bissell system," weighing 39,600 lbs. empty and 52,074 with fuel and water. The cost of the road was \$24,150 per mile, and in the first quarter of last year it earned \$344 gross and \$60 net per mile.

At the end of 1882 there were 158 miles of metre-gauge road completed, under construction or chartered in France.

The Russian railroads are reported to have earned in 1883 5 per cent. more per mile than in 1882, and 13 $\frac{1}{2}$  per cent. more than in 1881, which is very remarkable progress for Russian roads to make. At the beginning of 1883, there were 14,390 miles of road, and during the year 412 miles more were opened—all the additions being parts of the Transcaucasian Railroad, 343 miles completing it eastward to the Caspian Sea at Baku, and 69 miles continuing it southward along the east end of the Black Sea from the very bad port of Poti to the better one of Batum, which was acquired of Turkey in the last war. This brought the length worked up to 14,802 miles at the beginning of this year. The number of tons of freight delivered by shippers at stations (not including that transferred from one railroad to another) was 26,000,000 tons last year, which is 5 $\frac{1}{2}$  per cent. more than in 1882. The amount may be compared with the 37,379,546 carried last year over the 2,036 miles of the three lines of the Pennsylvania Railroad east of Pittsburgh and Erie, a considerable amount of which, however, was counted twice and some of it three times (once on each road). Counting each ton once on each road separately, the Russian shipments were 46,000,000 tons. The railroads received directly from foreign railroads and steamships a little less than 1,000,000 tons of freight, though the border is open for 1,200 miles along the German, Austrian and Roumanian frontier.

The gross earnings of the railroads in 1883 amounted to \$112,133,000 (if reported in the depreciated paper rubles, as doubtless they were). This is at the rate of \$7,685 per mile of road and 5 per cent. more than in 1882. The gross income (including something besides earnings from traffic) for four years has been:

	1880.	1881.	1882.	1883.
Total	\$96,602,965	\$100,420,044	\$107,581,446	\$116,125,080
Per mile	6,859	7,095	7,568	7,993

The earnings per mile last year were thus 5.6 per cent. more than in 1882, 11 $\frac{1}{2}$  per cent. more than in 1881, and 16 $\frac{1}{2}$  per cent. more than in 1880, which is a much better showing than current reports had led us to anticipate. The largest earnings, as well as the largest earnings per mile, are by the Nicholas Railroad from St. Petersburg to Moscow, 406 miles long, which earned \$29,478 per mile. But the next largest were but \$22,100 per mile. Two others made as much as \$20,000, but only five made as much as \$10,000 per mile. The company with the largest mileage has 1,530 miles of road and earnings per mile a little less than the average. No other road has more than 800 miles. The 626 miles of the Transcaucasian Railroad, which connects the Black Sea with the Caspian, earned but \$3,528 per mile; 12 roads earned less than \$3,000, and nine less than \$2,000 per mile; six less than \$1,500 and two less than \$1,000 per mile—all of which can be matched in this country.

The chief countries of the continent of Europe have been negotiating concerning proposed uniform regulations for international freight traffic. The subject was recently brought before the Prussian National Railroad Council, an organization of representatives of shippers provided for by law, and it urged the adoption of the regulation, and urged that it is desirable that an article forbidding secret rebates of rates in international traffic should be extended to the internal traffic of the different countries.

The nature of the functions of this Railroad Council may be gathered from the following statement of what was done at the same meeting: Motions to recommend the extension of special rates to spirits shipped locally to Hamburg and Danzig for export, and locally from Halle, were rejected by a large majority, the representatives of the farming interest all opposing. A motion for the reintroduction of special rates on grain and mill-stuffs from ports on the Ems, the Weser and the Elbe to stations in Rhenish Westphalia received but few votes. A motion to reintroduce a regulation for reshipping grain arriving in Breslau (an inland city) from Roumania for export by sea (apparently something like our provision for milling in transit) was adopted by a vote of 25 to 13 after an exhaustive debate, the "grangers" fearing injury to German grain-producers. The extension of the export grain tariff to clover shipped from Roumania and Galicia (foreign countries) for export at Stettin was recommended. A special tariff for furnace slag, etc., was recommended by a unanimous vote. The farming interest wanted low rates for furnace slag to be used for surfacing roads. A special rate for jute and manufactures of jute between seaports and Austria-Hungary was also recommended. A motion to introduce a special rate for raw jute from German ports to Meissen, in Saxony, was rejected, on the ground that it was not advisable to introduce a special rate for a single factory, and that it was questionable whether the rate proposed would pay the cost of the transportation to the railroads. A special rate for wine between Belgium and Austria-Hungary was recommended without debate.

On the part of the railroads it was requested that the regulations concerning the carriage of certain combustible materials, which required them to be packed in tight metal vessels, be modified, and it was recommended that the transportation of some of them in tight iron cars be permitted. A revision of the general tariff for freight shipped in small quantities was recommended.



A motion to extend the special rates on plate glass from certain stations for export at North Sea ports to exports by way of Antwerp and Basel was adopted for Basel and rejected for Antwerp. A proposition for a new special rate on Russian petroleum was referred to a committee.

This Railroad Council has authority only to make recommendations, and is intended to represent the views of patrons of the railroads in an authoritative way.

## TECHNICAL.

### Locomotive Building.

The Baldwin Locomotive Works, in Philadelphia, have taken an order to build 10 mogul freight engines for the Central Railroad of Georgia, to be delivered in time for the fall business.

The Brooks Locomotive Works, in Dunkirk, N. Y., recently completed a locomotive for the Chicago Locomotive Improvement Co. It has a new boiler invented by Mr. Charles B. Coventry, which is arranged on the return flue principle. The locomotive is now being tried on the Dunkirk, Allegheny Valley and Pittsburgh road. The return flue plan for locomotive boilers is not entirely new, having been first tried nearly 30 years ago and revived at intervals since.

The shops of the Central Railroad of Georgia, in Savannah, Ga., have just completed a new heavy passenger engine for the road and have another one about half completed.

The Cincinnati, New Orleans & Texas Pacific shops in Cincinnati are building two passenger engines with 18 by 24 in. cylinders and driving wheels 5 ft. 8 in. in diameter. These engines are intended to run fast passenger trains between Cincinnati and Chattanooga. The shops are also building a very heavy shifting engine with six drivers and 18 by 24 in. cylinders. It is understood that the company is about to let a contract for 16 mogul freight engines to be used on the New Orleans & Northeastern and the Alabama Great Southern roads.

The Cooke Locomotive Works in Paterson, N. J., have taken a contract to build three consolidation freight engines for the Ohio Southern road.

### Car Notes.

The Lima Car Works in Lima, O., have been closed for some time, but arrangements are now being made for a reorganization of the company upon a stronger financial basis, and it is said that the works will be extended and run upon a larger scale than ever before.

The Ohio Falls Car Works in Jeffersonville, Ind., last week delivered to the St. Louis and San Francisco road 12 passenger cars, 8 baggage cars and one postal car. These cars are all mounted on 42-in. paper wheels.

The Jones Car Works in Schenectady, N. Y., will be closed down by the Receiver August 1, all existing contracts having been filled.

The car shops of the Central Railroad of Georgia in Macon, Ga., are building two new first-class passenger cars for the road.

A Detroit dispatch says that the Peninsular Car Works in that city will shut down Aug. 1, with the intention of remaining closed for at least 30 and probably 60 days.

### Bridge Notes.

The Pittsburgh Bridge Co. is now shipping to St. Louis the material for the new Eighteenth street bridge. This bridge is 1,133 ft. long and consists of 10 spans, two of which are cantilever spans, 330 ft. long. The bridge is 52 ft. wide, having a double roadway and two sidewalks.

The Fort Pitt Boiler & Bridge Works of D. W. C. Carroll & Co. in Pittsburgh, are building a long iron trestle for the Pittsburgh Junction road. The trestle extends from Liberty avenue along Thirty-third street to the bridge crossing the Allegheny River, and requires about 1,200 tons of iron for its construction.

### Iron Notes.

The Iron River Furnace Co., of Iron River, Mich., has made an assignment for the benefit of its creditors. It is expected that the assets will exceed the liabilities if properly realized.

Isabella Furnace No. 2 in Pittsburgh is now averaging about 1,400 tons of pig iron per week. The furnace has been in blast since October 19, 1883. The ore used at present is a mixture of Lake Superior and Centre County, Pa., ores, the fuel being Connellsville coke. No. 1 Furnace, which was blown out some time ago, has been repaired and put in good condition, but has not yet been started up.

In the Pennsylvania Steel Works, at Steelton, Pa., the rail mill has been running for some time on rails for the Philadelphia & Reading road. The merchant mill is running to its full capacity and the blast furnaces are producing a large amount of pig iron. Other departments of the mills are fairly busy.

Douglas Furnace, in Sharpsville, Pa., is in blast, being the only one out of 10 furnaces in that place now running.

The Lancaster Rolling Mill, at Hempfield, Lancaster County, Pa., is now leased to the Franklin Iron Co., Limited. A small rolling mill is now in operation at Houston, Tex. The product of the mill is merchant iron, railroad spikes, fish-plates, and light iron rails. The works are owned by the Houston Rolling Mills & Iron Co., a local organization.

The Bethlehem Iron Co. in Bethlehem, Pa., has given notice of a reduction of 20 per cent. in all salaries and wages, to take effect Aug. 1. This reduction has been made necessary, the circular says, by the present very low prices of steel rails.

### Manufacturing Notes.

Gould & Eberhardt, in Newark, N. J., have recently shipped the Eberhardt patent universal automatic gear-cutters to Fay & Scott, in Dexter, Me., the Mason Locomotive Works, in Taunton, Mass., the Standard Machinery Co., in Mystic, Conn., Ball Bros., in Madison, Wis., and Robert Tarrant, in Chicago. They are also building some of the same machines for the Scott Printing Press Co., in Plainfield, N. J., and have some foreign orders. Some of these machines have the automatic rack-cutting attachment.

The Huett & Smith Manufacturing Co., in Detroit, have recently taken a number of orders for their exhaust fans for planing-mills, car-shops and similar works.

The Weimer Machine-Works in Lebanon, Pa., have contracted for a large blast furnace plant for the Iron Mountain Co., of Durango, Mexico.

D. W. C. Carroll & Co., of the Fort Pitt Boiler-Works, in Pittsburgh, have contracted to build a large steel tugboat for W. H. Brown & Sons, to be used on southern rivers. The boat is to have compound engines.

Messrs. H. & H. Elliot, who for 10 years past have been engaged in the manufacture of frogs, switches and crossings in East St. Louis, Ill., have transferred their business to the Elliot Frog & Switch Co., which will continue and enlarge it. Several new improvements in frogs and crossings have lately been adopted at these works. Mr. H. Elliot is President and H. Elliot, Jr., Secretary of the new corporation.

The E. T. Barnum Iron & Wire Works, in Detroit, Mich., have failed, and a number of attachments have been put on

the property. The works are extensive and complete, and have done a very large business.

The partnership existing between Calvin Wells and Aaron French, under the name of A. French & Co., has been dissolved as of date July 19. Mr. A. French will settle the affairs of the old firm.

The French Spiral Spring Co., Limited, has been dissolved by mutual consent and Messrs. A. French, D. C. Noble and Walter P. Hansell have been appointed liquidating trustees to close up its affairs at the former office in Pittsburgh.

The A. French Spring Co., Limited, a limited copartnership, formed under the laws of Pennsylvania, will continue the business heretofore carried on by A. French & Co. and the French Spiral Spring Co., Limited, and will manufacture all descriptions of elliptic and spiral railway springs, also wagon and carriage springs and spiral springs of all designs, for valves, agricultural implements, machinery, etc. The offices and works are at Twentieth and Liberty and Twenty-fifth and Smallman streets, Pittsburgh. The officers of the new concern are: Aaron French, Chairman; Julius E. French, Vice-Chairman; Geo. W. Morris, General Manager; D. C. Noble, Secretary and Treasurer; W. P. Hansell, General Superintendent.

### The Rail Market.

**Steel Rails.**—The market is very unsettled, and all sorts of reports are current as to prices. The facts appear to be that several large orders have been taken at prices which net from \$28.50@29 per ton at mill, and there seems to be no difficulty in placing good orders at from \$29@30. Railmen say that it is not possible for prices to go any lower, although they seem willing to sell at the present rates. There is just now quite a demand for light rails which are quoted at \$34@36, according to section.

**The Iron Age** of July 31 says: "There is more inquiry from good buyers, but competition is so sharp that prices are lower than they were a week ago. It is impossible to state definitely what figures have been accepted, but there is reason to believe that \$28 at mill has been shaded. There are free sellers at from \$28.50@29, although \$30 is asked for small lots, and \$34@35 for light rails. The low figures now current appear to have brought out some good orders, which, it is hoped, will help to stiffen prices after a while."

**Rail Fastenings.**—Quotations still remain unchanged at \$2.35 per 100 lbs. in Pittsburgh for spikes, \$2.50@2.75 for bolts and 1.7@1.8 cents per lb. for splice-bars. These quotations, however, are entirely nominal, and desirable orders can readily be placed at lower rates.

### Improved Cable Railroad.

Andrews & Locke, lessees of a stone quarry near Wilmington, Del., have built a cable road, 750 ft. long, to transfer stone from their quarry to their own railroad and also to cars on the branch of the Wilmington & Northern road. It is operated with a velociped car, said to be entirely novel and the invention of Col. Locke. The 2-in. steel wire cable is driven by a Lidgetwood patent friction engine of 50 horsepower, with two drums. Over one runs a wire rope which passes to the south side, while the other end is attached to the hinder part, thus making an endless wire by which the car is propelled back and forth. Around the other drum runs a wire rope by which the car is lowered to the ground to load or unload or raise by a single hand upon a lever. The engine, which weighs 25,000 pounds, was made by the Lidgetwood Manufacturing Co. of New York, and is a fine piece of mechanism.

### Fish-Plates.

A reporter of the Cleveland Herald, on asking a railroad official why the irons used in splicing rails are called fish-plates, received the following answer: "It is from a nautical term. When a sailor breaks a spar or anything of that sort that can be mended he places wooden sticks around it, just like splits used in setting a broken limb, wraps the whole firmly with cord and 'fishes' it. So the iron bars bolted on either side of a track rail to make it stiff are called fish-plates."

### Fast Time.

On Sunday morning, July 27, a special train over the New York, Providence & Boston road made the run of 62½ miles, from Groton to Providence, in 67 minutes. Three stops were made, one of them lasting 4½ minutes, so that the actual running time was little, if any, more than 60 minutes. The road is in excellent condition and has no heavy grades; its regular express trains do some pretty fast running.

### Metrical Congress.

The following contractions have been adopted by the International Metrical Congress at Paris, and are recommended for general use: 1. Length—Kilometre, *km*; metre, *m*; decimetre, *dm*; centimetre, *cm*; millimetre, *mm*. 2. Surface—Square kilometre, *km²*; square metre, *m²*; square decimetre, *dm²*; square centimetre, *cm²*; square millimetre, *mm²*; hectare, *ha*; are, *a*. 3. Cubic measure—Cubic kilometre, *km³*; cubic metre, *m³*; cubic decimetre, *dm³*; cubic centimetre, *cm³*; cubic millimetre, *mm³*. 4. Hollow measure—Hectolitre, *hl*; litre, *l*; decilitre, *dl*; centilitre, *cl*. 5. Weight—Ton (1,000 kilogrammes), *t*; metric hundredweight (100 kilogrammes), *q*; kilogramme, *kg*; decagramme, *dg*; gramme, *g*; decigramme, *dg*; centigramme, *cg*; milligramme, *mg*. Italic letters are used for these contractions, and no stop is to be used at the right of them. The contractions succeed the figures to which they refer, on the same line, and after the last decimal placed when figures are used which contain decimal fractions.

### Higginson's System of Hydraulic Riveting.

By the employment of steam riveting, the only plant necessary beyond the steam boiler, which generates the steam, is the riveting machine itself; the same may be said of the machine riveter when belt-driven, which is used in many boiler yards possessing power laid on through gearing; but in the hydraulic system, as hitherto employed, there has always been in addition to the steam boiler and set of pumps a heavy and cumbersome accumulator, to raise which the pressure pumps are constantly at work, and which is lowered by the draught upon it of the riveting machines, which take a certain quantity of water from the cylinder of the accumulator. This brings down the weight, by the sudden stoppage of which the final blow to complete the closing of the rivet is obtained. The pressure pumps thus work under constant load—that of the accumulator pressure.

The moving die of the riveter must be retracted after each operation to a greater distance than is absolutely necessary to clear the shank of the rivet. Supposing this clearance to amount to as much as an inch, then to bring the dies up to the rivet shank it has to be moved through a space of one inch, which is done by correspondingly lowering the accumulator. Now to bring the die up to the rivet almost no power is required, and yet the accumulator is discharged by as much as if work had actually been performed, the accumulator having been raised through the lost height which thus represents so much absolute loss of power. This point has frequently been noticed by engineers, but has been considered as an inevitable practical loss. But Messrs. Higginson & Co., of Metsey street, Liverpool, have given great attention to this point and have brought out their patented

system which dispenses with accumulators altogether, and is claimed, by thus avoiding the friction and loss of this detail, to use only one-third the power, and at the same time to economize in the weight and cost of the entire plant to about the same extent.

The principle of this patented method consists in using in connection with the hydraulic pumps a heavy fly-wheel, which does the work hitherto relegated to the accumulator.

When the tools are not at work the pumps merely circulate water through the connecting mains. When water is admitted to the ram such portion of the stroke as does no work upon the rivet is made by water at a pressure little above the ordinary pressure of circulation, but when the resistance of the rivet comes into play the pressure rapidly rises, and the rivet is closed by the expenditure of the energy stored in the heavy fly-wheel.

With an accumulator power is expended throughout the whole stroke at a maximum rate, while with the newer process the power during the greater part of the stroke is small, rising rapidly as the rivet is closed, the saving being very great; in fact, the new process may not only be conversely likened to the expansive working of steam, the old process taking steam throughout the stroke.

We have seen the system at work at the Boiler Works of Messrs. Fernibough & Sons, Stalybridge, and were further informed that uniform satisfaction had been given by this new plant. The system is also in operation at the works of the Thames Ironwork & Shipbuilding Co. (Limited), Blackwall; Messrs. Meehan & Sons, Cranston Hill, Glasgow; Phoenix Foundry, Co., Derby.—*Mechanical World*.

### Phosphor-Copper.

Mr. W. G. Otto, of Darmstadt, writes to the *Enquirer* that phosphor-copper is now largely used in the manufacture of copper and copper alloys. The action of phosphorus (*i. e.*, phosphor-copper) consists principally in its reducing properties, by virtue of which the oxygen which was absorbed by the molten metal, or rather the oxides thereby produced, are removed, and there is consequently imparted to the metal that degree of homogeneity, strength and toughness which is peculiar to the chemically pure metal. The phosphorus is converted into cuprous phosphate, which floats on the surface of the molten metal in the shape of an exceedingly fluid slag, whilst the superfluous quantity combines with the metal. It is, therefore, unnecessary to add to the liquid metal a larger quantity of phosphor-copper than would suffice to reduce the oxide present. Only a infinitesimal proportion of phosphorus exists in the best qualities of phosphor-bronze.

Many believe that the phosphorus itself imparts to the metal certain valuable properties, more especially that it increases the hardness and strength, and that consequently a proportion of phosphorus in the metal is of value. A small quantity of phosphorus certainly is less detrimental to the properties of the metal than many other bodies by means of which the same results are sought to be obtained, but in no case does the presence of phosphorus in the metal improve it. A certain amount of phosphorus increases the hardness of the metal at the expense of its toughness. A bronze of greater hardness is better obtained by increasing the quantity of tin, which does not affect the toughness of the metal to the same extent as if an equal degree of hardness were to be obtained by a larger addition of phosphorus.

All products should be excluded from use which offer no guarantee for the quantity of phosphorus, which by their agency would be conveyed to the metal, more especially mixtures which liberate the phosphorus in the molten metal, or also free phosphorus which, as a necessary sequence, entails that at one time a greater, and at another time a lesser proportion remains in the metal.

When the reduction of the oxide present in the liquid metal is complete the surface becomes perfectly clear. Experience shows that this is obtained as a rule by an addition of 0.1 per cent. of phosphorus, or 0.66 per cent. phosphor-copper of 15 per cent. phosphorus; should such an addition not produce this result, or should the surface of the metal again have become covered during the time which lapses till the metal can be poured, and providing that it should meanwhile not have become too cold, small quantities of phosphor-copper should gradually be added till the surface again becomes quite clear, after which the metal should be poured at once.

### Railroad Sanitation and Cholera.

Mr. C. H. Chappell, General Manager of the Chicago & Alton road, has issued the following circular:

"The heads of departments and officers of the Chicago & Alton Railroad Co. in charge of property will, upon the receipt of this circular, have a thorough inspection made of all buildings, out-houses and grounds adjoining buildings at or between stations, looking: 1. To the condition and quality of the water supply. 2. As to the disposition made of night-soil, garbage and sewerage. 3. As to the general sanitation of every building and its surroundings. The General Manager desires that the grounds about stations and section-houses be at once placed in the best attainable sanitary condition, with special reference to the character of the water supply for the use of passengers and employees, the condition of all depositories of offal, garbage and excrement, and the sanitary condition of all surroundings upon the grounds of the company and adjoining. To this end you will at once take the necessary action with reference to the property of this company, and call the attention of the proper authorities to any unhealthy conditions existing upon property adjoining that owned by this company."

### An Electric Street Railroad.

A daily contemporary takes rather a sanguine view of the success of electric propulsion as applied to street railroads. The merits of the system, especially from a financial point of view, can hardly be determined by a single day's working. The dispatch published from Cleveland, O., July 27, says: "The first electric railroad for public use in America went into operation in this city yesterday in connection with the East Cleveland Street Railroad Co., which has just completed a mile of road. The experiment was so successful that the company expects to change its entire system, comprising over 20 miles, into electric roads. The system used was a combination of the Brush & Knight and the Bentley systems, and the current was carried on underground conductors laid in conduits like those of cable roads. The cars were started and stopped and reversed with the greatest ease. Any number of cars up to 15 can be run at one time on a single circuit and from one machine, which is a result not attained by any of the European systems now in operation. The success of the new road has made a great sensation in both street railroad and electrical circles, and is expected to greatly extend the field of electrical development, as well as enhance the value of street railroad properties."

### Train Service in England.

At the annual dinner of the Railway Guards' Universal Friendly Society the Prince of Wales presided, and in his speech gave the following interesting statement of English railroad traffic:

"I find that there is no return given which will show the number of trains run in any one day by all the railway



companies in the kingdom, but I have been able to ascertain one or two facts which may prove of interest. At Watford Junction, on the London & Northwestern Railway, 233 trains pass that station every day. This gives something like one in every four minutes of the 24 hours. At Cannon Street Station, on the Southeastern Line, the number of trains using the station is 750 in one day. I also find that at Clapham Junction the London & Southwestern Railway had, in the year 1877, on an ordinary week day, 656 trains, while on the Derby Day of 1876 no less than 1,023 trains passed through this junction. The total number of passengers conveyed in 1883, exclusive of season-ticket holders, was—first-class, 36,387,177; second-class, 66,096,784; third-class, 581,233,476; total, 683,718,137; and season-ticket holders, 180,000,000; total, 863,718,137. Of minerals there were conveyed 189,485,612 tons; of general merchandise, 76,897,356 tons; number of miles run by passenger trains, 189,545,464; number of miles run by goods and mineral trains, 129,351,774; total miles run, 268,897,236; miles of railways, 18,668; number of persons employed, 367,660."

#### Qualifications for English Permanent Way Inspectors.

At a meeting of the recently organized "Institution of Permanent Way Inspectors," in Birmingham, England, June 28, a form of diploma of competency was adopted, which calls for the following as the qualifications essential for men employed in maintenance of way: 1. Bodily vigor, and especially good sight and hearing. 2. Knowledge of the subjects taught in the common schools, especially reading and writing, the four fundamental rules of arithmetic and fractions, both vulgar and decimals; ability to prepare written statements in suitable form concerning any occurrence within the sphere of their duties. 3. A general knowledge of the different metals and timbers used in permanent way, bridges, buildings and other structures. 4. A general knowledge of the simple laws of physics, affecting permanent way and other railway structures. 5. A special knowledge of constructing and maintaining permanent way, its points and crossings, etc., etc. 6. A special knowledge of the construction and maintenance and working of signals. 7. A special and complete knowledge of the rules and regulations of the Railway Clearing-House companies, applicable to platelayers in particular, and to other officers and employees in general; these rules, when well known by members, will have special value. 8. A general knowledge of the accounts, returns, reports, etc., in connection with permanent way and works. 9. A general knowledge of the geographical position of the railway engaged upon, its system of maintenance and design of permanent way, etc., etc. The annual meeting of the institution will be held in London in January next.

### General Railroad News.

#### MEETINGS AND ANNOUNCEMENTS.

##### Meetings.

Meetings will be held as follows:

*Boston, Hoosac Tunnel & Western*, annual meeting, at the office in New York, Aug. 20.  
*Greenville & Laurens*, annual meeting, in Greenville, S. C., Aug. 5.  
*Norfolk Southern*, annual meeting, at the office in Elizabeth City, N. C., Aug. 15, at noon.  
*Poughkeepsie & Southwestern*, annual meeting, at No. 97 Nassau street, New York, Aug. 20, at noon.  
*St. Paul, Minneapolis & Manitoba*, annual meeting, in St. Paul, Minn., Aug. 20.

##### Dividends.

Dividends have been declared as follows:

*Chicago & Alton*, 2 per cent., quarterly, payable Sept. 1, to stockholders of record Aug. 9.  
*Danbury & Norwalk*, 2½ per cent., payable Aug. 15, to stockholders of record Aug. 5. The last dividend was in April, 1883.  
*Rutland*, 1 per cent., on preferred stock, payable July 28. The last dividend was in August, 1882.

##### Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

*Traveling Passenger Agents' Association*, annual meeting, in Denver, Col., on Tuesday, Aug. 12.  
*Western Association of General Passenger & Ticket Agents*, adjourned meeting, in Minneapolis, Minn., on Wednesday, Aug. 13.  
*Train Dispatchers' Association*, preliminary meeting, to form an association, in Louisville, Ky., on Wednesday, Aug. 20.  
*Master Car-Painters' Association*, annual convention, in Boston, on Wednesday, Sept. 3. A full programme will be found below.  
*Road-Masters' Association of America*, annual convention, in Indianapolis, Ind., on Wednesday, Sept. 10.  
*Association of American Railroad Superintendents*, semi-annual meeting, in Boston, on Tuesday, Sept. 16.  
*National Association of General Passenger & Ticket Agents*, semi-annual convention, in Boston, on Tuesday, Sept. 16.  
*New England Railroad Club*, first monthly meeting for the season, at the rooms in the Boston & Albany station in Boston, on Wednesday, Sept. 24.  
*New England Road-Masters' Association*, annual convention, at White River Junction, Vt., on Wednesday, Oct. 8.  
*General Time Convention*, fall meeting, at the Continental Hotel, Philadelphia, on Thursday, Oct. 9.  
*Southern Time Convention*, fall meeting, at No. 46 Bond street, New York, on Wednesday, Oct. 15.  
*American Street Railway Association*, annual convention, in New York, on Wednesday, Oct. 15.

##### Foreclosure Sales.

The *Midland North Carolina* road was recently sold for \$47,000, and purchased on account of the creditors. The completed road extends from Goldsboro, N. C., to Smithfield, 22 miles, running for that distance parallel with the North Carolina Railroad. It was built some three years ago by the Midland Improvement & Construction Co., a Boston organization, which for a time leased the Atlantic & North Carolina Railroad and purposed extending it from Goldsboro to Salisbury, but failed when the 22 miles of road had been completed and was compelled to give up its lease of the Atlantic & North Carolina road. A large amount of money was invested in this road, very little of which will probably be returned.

##### Western Society of Engineers.

The 190th meeting was held at the Society rooms in Chicago on Tuesday, July 15, President Cregier in the chair. Application to be admitted as a member was presented from Mr. John Allison Porter, properly indorsed. Mr. Wright, for the Committee on Revision, reported progress, and requested more time, which was granted. Mr. Wright, for Committee on Transportation, stated

that this committee had a paper for presentation, "Stable Construction," prepared by himself.

The paper was read, and after having been discussed, it was voted that it should be printed.

Mr. Cregier explained the manner in which the river commerce of Chicago would be transacted after the present drawbridges were abolished and fixed spans substituted for them.

After a general discussion of this matter the meeting adjourned.

##### Train Dispatchers' Association.

A meeting of the train dispatchers of Buffalo and vicinity was held in that city July 22, a number being in attendance. Mr. F. E. Blackney was chosen chairman and I. H. McEwen secretary. A number of letters were received from dispatchers who were unable to be present. After discussion it was resolved to organize a local association under the name of the Train Dispatchers' Association of Buffalo and Vicinity, and a committee was appointed to prepare a constitution and by-laws. A general invitation was extended to all dispatchers joining in the movement to attend the convention to be held in Louisville, Aug. 20, to organize a national association. Resolutions were passed urging upon the National Association the importance of a uniform system of train rules and also a due consideration of the question of Sunday labor. The meeting then adjourned until Aug. 13.

##### Master Car-Painters' Association.

The following programme for the annual convention has been issued by the Secretary, Mr. R. McKeon, from his office in Kent, O., under date of July 22:

The Fifteenth Annual Convention of the Master Car-Painters' Association will be held at Boston, Mass., opening at 10 o'clock a. m., Wednesday, Sept. 3, 1884.

Young's Hotel, corner of Court street and Court avenue, has been selected by the committee as the headquarters for delegates, and where commodious parlors have been secured in which to hold the meeting.

This hotel is conducted on the European plan, and arrangements have been made for all delegates to secure rooms at from \$1 to \$1.50 per day, according to location. Those desiring to engage rooms will apply to Messrs. Hall & Whipple, managers of the hotel, five days previous to the opening of the convention. Meals can be had at the hotel or outside, as members prefer. The table is first-class, and charges according to what is ordered.

A cordial invitation is extended to master car and locomotive painters throughout the United States and Canada to meet with us in convention. On roads having more than one shop, each is entitled to representation by its foreman painter.

It is requested by the Committee on Questions that delegates bring working designs or tracings of ornamentation for posts, panels and head linings, such as they have in use on their respective roads, as such exhibit will be beneficial to the members, and a comparison of the different styles will tend to forward and encourage decoration, which, although being at present cut off to a great extent in some shops from the exterior of the car, will be introduced again at no distant day.

From the many subjects submitted at the close of the last convention for discussion the Committee have selected the following, and hope they may prove of general interest, and it is the desire of the committee that each delegate examine the programme and come prepared to give their views on some one of the questions in addition to the regularly appointed committees.

Any member of a committee unable to attend the convention will forward their report to the Secretary six days previous to the meeting.

##### SUBJECTS FOR DISCUSSION.

1. The Best Method of Testing Varnishes to Secure the Most Satisfactory Results as to their Durability, with practical suggestions as to the time a car may safely remain in service before being taken in for revarnishing. D. D. Robertson, Michigan Central Railroad, Detroit, Mich.
2. What is the Most Practical Plan for Removing Old Paint from the Iron Work of a Locomotive and Tank, when necessary to be cleaned off to the iron, and what is the Best Primer for Iron? John S. Atwater, Hinkley Locomotive Works, Boston, Mass.; A. J. Bishop, Cleveland, Columbus, Cincinnati & Indianapolis Railway, Cleveland, Ohio.
3. The Art of Painting: an essay by A. P. Sweet, Detroit, Lansing & Northern Railroad, Ionia, Mich.
4. Which gives the Best Results as to Wear and Durability, an Elastic or a Hard Drying Color on Passenger Cars? C. E. Felch, Southeastern Railway, Farnham, Que.
5. A Plea for Light Colors on Passenger Cars, or Economy in the Railway Paint Shop. R. McKeon, New York, Pennsylvania & Ohio Railroad, Kent, Ohio.
6. The Best Method to Pursue and the Material Used for Cleaning a Passenger Coach preparatory to Touching Up and Revarnishing, with formulas for Matching the Principal Car Body Colors now in general use. Wm. Davis, Canada Southern Railway, St. Thomas, Ont.; Jas. T. Cockburn, Pittsburgh, Cincinnati & St. Louis Railway, Logansport, Ind.
7. Interior Decoration of Railway Passenger Cars; an essay by A. A. Kelly, Chester Valley, Pa.
8. How can we improve the Method of Painting a Passenger Car, durability considered? E. Hartshorn, Maine Central Railroad, Augusta, Me.; John Rattenbury, Chicago, Rock Island & Pacific Railway, Chicago, Ill.
9. What is the Best Method of Mixing the Priming Coat for a Passenger Car which requires Repainting when the Old Paint is Sound, and what for a Car when the Old Paint is Burned Off? J. C. Stout, Kansas Pacific Railway, Armstrong, Kan.

#### ELECTIONS AND APPOINTMENTS.

*Addison & Northern Pennsylvania*.—The following circular from General Superintendent Frank M. Baker is dated Addison, N. Y., July 26:

"Mr. H. C. Hitchcock has been appointed Auditor of this company, vice F. W. Thomas, resigned, appointment to take effect Aug. 1, 1884."

*Atchison, Topeka & Santa Fe*.—General Manager A. A. Robinson has issued the following circular:

"Mr. George L. Sands has resigned the position of Superintendent of the Southern Division, to take effect Aug. 1, 1884. The Southern Division on and after Aug. 1 will be divided into two divisions as follows: The Las Vegas Division from Raton to Wallace, including Wallace yard—headquarters at Las Vegas. The Rio Grande Division from Wallace to Deming and El Paso—headquarters at San Marcial. Charles Dyer, Train-master, is promoted to the position of Superintendent of the Las Vegas Division. P. F. Barr is appointed Superintendent of the Rio Grande Division."

*Atlanta & West Point*.—At the annual meeting in Atlanta, Ga., July 25, Mr. L. P. Grant was re-elected President, with the old board of directors. The board elected H. M. Abbott Secretary and Treasurer, in place of A. W. Hill, and C. H. Cromwell General Freight and Passenger Agent, in place of A. J. Orme. The offices will be at Montgomery, Ala., hereafter. The changes are made to consolidate the offices

with those of the Western Railroad of Alabama, both roads being under the same control.

*Boston & Lowell*.—Mr. Edwin Morey, for many years a director of this company, is now acting as General Manager.

*Burlington, LaFayette & Western*.—The office of this new company is in LaFayette, Ind.; the officers are: President and Chief Engineer, G. J. Henninger; Secretary, Carl C. Winter; Treasurer, Patrick Feeley.

*Cincinnati Northern*.—The new Receiver, Mr. George Hafer, has appointed Mr. George L. Barringer General Manager of the road. Mr. Barringer was formerly connected with the line.

*Georgia Pacific*.—Mr. G. S. Barnum has been appointed Superintendent of the Western Division, with office in Columbus, Miss. He was recently on the Richmond & Danville.

*Isthmus Pacific*.—The directors of this new company are: Wm. Sharen, Virginia City, Nev.; Edward R. Coleman, St. Louis; J. Edward Conant, Elizabeth, N. J.; Samuel B. Smith, Fredonia, N. Y.; Andrew W. Kent, Brooklyn, N. Y.; Henry Cranston, Francis Morris, New York.

*Lackawanna & Pittsburgh*.—Mr. George D. Chapman, late Vice-President, has been chosen President in place of Archer N. Martin, resigned.

*Louisville & Nashville*.—At a meeting of the board in New York, July 29, the resignations of C. C. Baldwin, Jay Gould, John E. Green, T. F. Ryan and Russell Sage as directors were accepted, and the following new directors were chosen to fill the vacancies: J. A. Lindenberg, J. D. Wilder, Louisville, Ky.; Frederick W. Foote, John D. Probst, Extine Norton, New York. Mr. Lindenberg is President of the Merchants' National Bank of Louisville; Mr. Wilder was formerly President of the Louisville, Cincinnati & Lexington Co.; Mr. Foote is of the house of John J. Cisco & Co., long financially connected with the road; Mr. Probst is a large stockholder, and Mr. Norton is a banker who has large investments in Southern roads and much experience in their management.

*Marquette, Houghton & Ontonagon*.—At the annual meeting the following gentlemen were chosen directors: George Higginson, H. L. Higginson, F. L. Higginson, J. L. Stackpole, J. P. Lyman, William Simms, F. W. Thomas, Samuel Sloan, S. L. Smith.

*Oregon & California*.—The new directors have elected the following officers: President, Henry Villard; Vice-President, Charles E. Brotherton; Second Vice-President, R. Koehler, of Portland; Secretary and Treasurer, Geo. H. Andrews, of Portland. The new directors of the London board are Charles E. Brotherton, Geo. H. Hopkinson, R. D. Peebles, Patrick Buchan and Henry Villard. The Portland board are Donald McLeay, R. P. Earhart, R. Koehler, John McCracken, Geo. H. Andrews, Walter W. Brotherton.

*Pittsburgh & Western*.—The following circular from Vice-President and General Manager Thomas M. King is dated Allegheny, Pa., July 28:

"On and after Aug. 1, 1884, the authority of J. T. Johnson, Superintendent of the Pittsburgh & Western Railroad, will be extended over the Pittsburgh, Cleveland & Toledo Railroad, and he will have immediate charge of all transportation and motive power employees. The position of Superintendent of the Pittsburgh, Cleveland & Toledo Railroad has been abolished, and W. C. Agnew, present Superintendent, will be assigned to other duties."

*Richmond & Danville*.—Mr. S. L. McClosky has been appointed Assistant General Freight Agent, with office in Atlanta, Ga., in place of Mr. G. S. Barnum, who has gone to the Georgia Pacific road.

*Salt Lake & Western*.—The directors have elected the following officers for the ensuing year: S. H. H. Clark, President; W. W. Ritter, Vice-President; Henry McFarland, of Boston, Secretary and Treasurer; A. F. Doremus, Chief Engineer. The road is controlled by the Union Pacific.

*Toledo, Cincinnati & St. Louis, Dayton Division*.—Mr. C. E. Henderson (General Manager of the Indiana, Bloomington & Western road) has been appointed General Manager for the purchasers of this road, and has issued the following circular: "Mr. G. L. Dickinson is appointed Auditor, with office at Indianapolis, Ind. Reports pertaining to business transactions on and after July 24, 1884, should be made to him at Indianapolis. Communications relating to accounts prior to July 24 should be addressed to the Receiver of the Toledo, Cincinnati & St. Louis Railroad, or his representatives, as heretofore. Mr. W. W. Lynn is appointed Cashier, with office at Indianapolis, Ind. The Dayton Division extends from Delphos, O., to Dayton."

Mr. E. Hiserodt is appointed Master Mechanic of the road, with office in Dayton, Ohio.

*Toledo, Cincinnati & St. Louis, Southeastern Division*.—The Purchasing Committee of bondholders having received possession of the Southeastern Division, have appointed Mr. C. E. Henderson their General Manager. He is also General Manager of the Indiana, Bloomington & Western road. Mr. Henderson has issued the following circular:

"Mr. G. L. Dickinson is appointed Auditor with office at Indianapolis, Ind. Reports pertaining to business transactions on and after July 22, 1884, should be made to him at Indianapolis. Communications relating to accounts prior to July 22 should be addressed to the Receiver of the Toledo, Cincinnati & St. Louis Railroad, or his representatives, as heretofore. Mr. W. W. Lynn is appointed cashier, with office at Indianapolis, Ind. The Southeastern Division extends from Dayton, O., to Ironton."

*Wisconsin, Iowa & Nebraska*.—Mr. George W. Severs, of Des Moines, Ia., has been appointed General Solicitor, with headquarters at Des Moines. Mr. S. S. Wick, formerly of Chicago, has been appointed Auditor. The offices, except that of Superintendent, have been transferred to Des Moines, Iowa.

#### PERSONAL.

—Mr. F. W. Thomas has resigned his position as Auditor of the Addison & Northern Pennsylvania Co., dating from Aug. 1.

—Mr. George L. Sands has resigned his position as Superintendent of the Southern Division of the Atchison, Topeka & Santa Fe road.

—Mr. Archer N. Martin has resigned his position as President of the Lackawanna & Pittsburgh Co., on account of the pressure of other business.

—Mr. Arthur S. Hanson, Assistant General Passenger Agent of the Boston & Albany, has declined a similar position offered by the Chicago, Rock Island & Pacific.

—Mr. A. W. Hill withdraws from his position as Secretary and Treasurer of the Atlanta & West Point Co., on account



of the consolidation of the offices with those of the Western Railroad of Alabama.

—Mr. Thomas Dickson, for many years President of the Delaware & Hudson Canal Co., is dangerously ill at his summer residence in Morristown, N. J. No hopes are entertained of his recovery.

—Dr. Thomas C. Durant, who is so widely known among railroad men, has been seriously ill for some time past, but is now slowly recovering, and is able to visit his office in New York and attend to business.

—Mr. A. J. Orme retires from his office as General Freight and Passenger Agent of the Atlanta & West Point road, the offices being consolidated with those of the Western Railroad of Alabama. Mr. Orme has been connected with the West Point road for 28 years.

—Mr. H. H. Filley, now one of the oldest engineers in Mexico, having gone there as a locating engineer for the Mexican National Construction Co. in March, 1880, has been appointed Acting Chief Engineer of that company. The company is at present doing no new construction work.

—Col. Robert Andrews has resigned his position as Consulting Engineer of the Wabash, St. Louis & Pacific road, and will retire from business altogether for a time. He expects to live for the present in Delaware, his native state. Col. Andrews has been connected with the road for nearly 20 years, serving as Division Superintendent, General Superintendent and Chief Engineer before he became Consulting Engineer.

—Mr. George Whaley, for ten years Manager of the locomotive works at Rouen of the Western Railroad of France, was decorated with the cross of the Legion of Honor, June 28. Mr. Whaley is English by birth, his father, now a retired officer of the Western Co., having started the works in 1839. Mr. Whaley gave a dinner on this occasion to the whole force of workmen under him, and at a speech on this occasion said that a strike had never been known at the Rouen works in the whole 45 years of their history.

—Mr. J. W. McCulloh, formerly Receiver of the New Jersey Midland road, is now Secretary of the New Aqueduct Commission, which is charged with the duty of building an additional aqueduct from the Croton River to New York city. Mr. McCulloh's experience as an engineer and in the management of large corporate interests well qualifies him for this responsible position, and his appointment was made entirely on the ground of his fitness for the post, and not on account of, but rather in spite of, political influences, other candidates having been urged by the politicians.

## TRAFFIC AND EARNINGS.

### Railroad Earnings.

Earnings for various periods are reported as follows:

Six months ending June 30:	1881.	1883.	Inc. or Dec.	P. c.
Boston, Hoosac	\$190,884	\$148,885	I.	\$42,003 28.2
Tun. & W.	678,689	743,401	D.	64,712 8.7
Det. Lan. & No.	1,598,303	1,677,686	D.	79,383 4.9
Eastern	223,700	171,509	I.	52,190 23.4
Ft. Worth & D.	1,372,205	987,034	I.	385,171 28.0
Mexican Central	3,265,849	3,317,432	D.	51,583 1.6
Mo., Kan. & Tex.	909,225	1,030,321	D.	121,096 13.3
Net earnings	7,636,226	7,651,219	D.	15,093 0.2
Mo. Pacific	3,275,697	2,942,407	I.	333,290 11.3
Net earnings	451,928	465,495	D.	13,567 2.9
N. Y. Sus. & W.	1,246,562	1,209,435	I.	37,067 3.0
Norfolk & West.	458,749	501,936	D.	43,187 9.0
Net earnings	2,630,355	2,641,614	D.	11,259 0.4
Northern Cent.	948,243	1,077,534	D.	129,291 13.6
Net earnings	1,090,170	2,042,302	D.	952,132 87.3
Ohio & Miss.	14,218,764	10,965,859	I.	3,252,905 23.0
Phila. & Reading	577,339	633,265	D.	55,926 9.7
South Carolina	7,448,857	7,383,793	I.	65,064 0.9
Wabash, St. L. & Pacific	527,509	477,839	I.	49,670 9.4
West Jersey	185,213	162,565	I.	22,648 12.5
Net earnings	337,830	326,561	I.	\$11,269 42.4
Month of June:	\$37,830	\$32,113	D.	\$5,717 15.3
Boston, Hoosac	109,289	132,113	D.	22,824 20.8
Tun. & W.	291,251	300,637	D.	9,386 3.1
Det. Lan. & No.	38,300	31,900	I.	6,400 16.7
Eastern	243,443	158,727	I.	84,716 34.7
Ft. Worth & D.	1,208,258	1,077,534	I.	130,724 10.8
Mexican Central	515,704	588,152	D.	72,448 14.0
Mo. Pacific	82,070	203,610	D.	121,540 147.1
Net earnings	183,869	48,079	D.	135,790 74.2
N. Y. Sus. & W.	57,254	84,079	D.	26,825 46.9
Norfolk & West.	416,635	476,164	D.	59,529 14.3
Net earnings	136,629	178,244	D.	41,615 30.5
Northern Cent.	289,163	330,732	D.	41,569 14.4
Ohio & Miss.	2,148,763	2,810,989	D.	662,226 30.8
Phila. & Reading	897,927	1,210,987	D.	313,060 34.9
Net earnings	55,773	63,250	D.	7,477 13.4
South Carolina	112,374	108,698	I.	3,676 3.3
Wabash, St. L. & Pacific	33,009	42,181	D.	9,172 27.8
Net earnings	330,650	\$28,475	I.	\$3,175 28.7
Second week in July:	19,648	19,648	.....	.....
Kansas City, Ft. Scott & Gulf	.....	.....	.....	.....
Kan. City, Spr. & Mem.	.....	.....	.....	.....
Third week in July:	.....	.....	.....	.....
Chi. & Alton	\$183,442	\$190,975	D.	\$7,533 3.9
Chi. & East Ill.	31,790	33,496	D.	1,706 5.1
Chi. & Mil. & St. P.	440,000	413,796	I.	26,204 5.9
Chi. & Nor-west	452,500	506,000	D.	53,500 11.8
Chi. & St. P., Min. & O.	105,400	108,360	D.	2,960 2.7
Long Island	88,684	88,422	I.	262 0.3
Louisv. & Nash.	248,950	263,720	D.	14,770 5.9
Mil. & Northern	9,610	8,320	I.	1,290 15.5
No. Pacific	231,778	187,700	I.	44,078 19.0
Roch. & Pitts.	24,137	14,335	I.	9,802 40.6
St. L. & San F.	79,100	64,000	I.	15,100 19.1
Wabash, St. L. & Pacific	298,570	281,628	I.	16,942 5.7

Weekly earnings are usually estimated in part, and are subject to correction by later statements.

### Grain Movement.

For the week ending July 19, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Receipts.	Total.	By rail.	P. c.	Atlantic.
1877	3,151,091	3,123,145	318,843	10.2	2,013,274
1878	4,705,172	3,652,063	1,338,710	36.7	5,003,803
1879	4,851,503	5,100,422	1,545,265	30.0	7,450,637
1880	5,826,850	6,559,034	1,526,180	23.3	9,428,106
1881	4,950,743	4,721,037	1,868,110	39.6	6,238,434
1882	5,615,149	3,951,411	1,594,504	39.6	2,665,361
1883	3,826,070	3,283,404	1,038,078	31.6	2,996,882
1884	3,279,070	3,062,183	1,042,385	33.9	2,817,797

The receipts of the Northwestern markets for the week this year were smaller than in any corresponding week since 1877, but were 243,000 bushels more than in the previous week of this year. It is now late enough for the new winter wheat crop to have some effect on the receipts, but so far it has had but little, they being very little above their lowest point. The shipments of these markets for the week were larger than last year and nearly as great as in 1882,

and a very little more than the week before. The rail shipments were much larger than last year, but less than for four years previous. They were the largest for three weeks, but much less than during the period of the 15-cent rate. The shipments down the Mississippi amounted to 138,528 bushels.

The Atlantic receipts for the week were a little less than last year and a little more than in 1882, but very much less than in any of the four years from 1878 to 1881. They were nearly a third larger than the week before, however, when they were exceptionally small. New York, which had less than one-third of them then, had 64 per cent. of them in this week to July 19.

Exports from Atlantic ports for the week to July 19 for five years have been:

	1880.	1881.	1882.	1883.	1884.
Flour, bbls.	127,797	125,168	104,609	104,682	152,433
Grain, bu.	6,237,551	3,802,309	1,813,951	1,940,986	2,746,642
Total, bu.	6,812,637	4,365,655	2,284,691	2,412,035	3,434,569

Thus the exports this year were 42 per cent. more than last year and 50 per cent. more than in 1882, but 21 per cent. less than in 1881 and little more than half as great as in 1880.

### Coal.

Coal tonnages for the week ending July 19 are reported as follows:

	1884.	1885.	Inc. or Dec.	P. c.
Anthracite	94,016	310,630	D.	216,614 69.6
Eastern bituminous	187,374	178,759	I.	8,615 4.6
Coke	43,934	59,547	D.	15,613 35.3

In anthracite a week of total suspension compares with a half-time week last year. No official action has been taken as to any suspension of mining in August. It is understood that several of the companies are opposed to any such action, believing that it is not necessary, and that no further stoppages will be required this year.

The coal tonnage of the Pennsylvania Railroad for the week ending July 19 was:

	Coal.	Coke.	Total.
Line of road	144,666	39,373	184,039
From other lines	54,522	4,361	58,883
Total	199,188	43,734	242,922

The total tonnage this year to July 19 was: 7,130,477 tons, against 6,511,263 tons to the corresponding date last year; an increase of 619,214 tons, or 9.5 per cent.

Cumberland coal shipments for the week ending July 26 were 65,836 tons. The total shipments this year to July 26 were 1,535,528 tons, against 1,316,363 tons to the corresponding date last year, an increase of 219,165 tons, or 16.7 per cent. The Cumberland & Pennsylvania and the George's Creek & Cumberland roads have been badly damaged by washouts, which will probably reduce shipments largely for this and the next week.

Shipments of coal from the mines at Pocahontas, Va., over the Norfolk & Western road for the six months ending June 30 were: Coal, 78,131; coke, 44,658; total, 122,789 tons. Work was suspended in the mines for nearly two months on account of the explosion in March.

### Cotton.

Cotton movement for the week ending July 25 is reported as follows, in bales:

	1884.	1885.	Inc. or Dec.	P. c.
Receipts	907	5,886	D.	4,979 54.8
Shipments	4,111	8,496	D.	4,385 10.6
Stock, July 25	25,130	61,629	D.	36,499 145.2
Receipts	2,800	8,296	D.	5,496 196.3
Exports	20,572	14,348	I.	6,224 30.3
Stock, July 25	235,605	322,022	D.	86,417 36.7

The total shipments from plantations for the cotton year from Sept. 1 to July 25 are estimated at 5,643,063 bales; the decrease, as compared with last year, is 1,291,269 bales, the increase as compared with 1881-2 is 312,885 bales, and the decrease from 1880-81 is 838,733 bales.

### Transcontinental Traffic Association.

A circular from Commissioner G. W. Kistine says that the Pacific Mail Steamship Co. has found it necessary to pay a commission of \$20 on through tickets from Australia and New Zealand to England by way of San Francisco and New York. The railroad lines are asked to assume the payment of this share of this commission, about \$7.50, which will reduce the amount received for each passenger to \$92.50 from San Francisco to New York. The full through rate from Australia and New Zealand points to Liverpool is \$70, or about \$350, of which the Pacific Mail receives \$175, the railroad lines \$100, and the Atlantic steamship lines \$75.

### Mississippi River Improvements.

At a session of the Mississippi River Commission this week the total appropriation of \$1,350,000 made by Congress for improvements in the Mississippi was apportioned as follows: Work at Plum Point, \$300,000; at Lake Providence, \$300,000; at Memphis Harbor, \$200,000; at Vicksburg Harbor, \$25,000; contingent expenses, \$25,000; general river work, \$300,000; and for levees, \$200,000. The appropriation for the levees is the largest which the means at the disposition of the Commission made possible. Delegations from all along the river appeared before the Commission to ask for larger appropriations, and from Arkansas to Mississippi alone \$1,500,000 worth of levee work was asked for, which, of course, the Commission was unable to grant, especially as the levee work can only be carried on as a part of the plan for the general improvement of the river without reference to the necessities of the adjoining country for protection.

### Colorado Traffic Association.

A meeting of the Colorado Traffic Association was held in Denver, Colo., July 24, at which a resolution was adopted prohibiting any lines in the association from making rates below the present tariff or from issuing any free passes to secure business. The new rates to take effect Aug. 1 were adopted on business between Missouri River points and Colorado. These new rates (per 100 lbs.) are as follows, by classes: First, \$2.10; second, \$1.70; third, \$1.40; fourth, \$1.15; fifth, \$1.00; A, \$1.10; B, \$0.75; C, \$0.65; D, \$0.50.

### Passenger Commissions in San Francisco.

Negotiations are said to be in progress for a plan by which the outside ticket offices in San Francisco, representing the lines from Council Bluffs and Kansas City eastward, can be closed. It is said that all the eastern lines are in favor of this plan, except the Rock Island, and it is also strongly urged by the Central Pacific, which, being the only line running out of San Francisco, has been very much annoyed by being obliged to deal with so many outside agents. It is said that the Central Pacific has even gone so far as to ask that all the agencies be abolished, and that it may be allowed to divide the eastern passenger business equally among the lines in interest.

### Central Iowa Traffic Association.

A meeting of the Central Iowa Traffic Association was held in Chicago July 25. Very little but routine business was transacted, but an important point was secured in the presence of a representative of the Wabash, which is taken as

an evidence that this company intends to join the association. Another meeting will be held shortly for the purpose of equalizing and possibly advancing rates.

### Mexican Freight Rates.

The Mexican Financier, of July 15, says: "Statements have been made by the press to the effect that the new freight tariff of the Mexican Central Railroad unduly favors the importation of goods from the United States, at the expense of local and national traffic. They are based on the fact that the rate per ton per kilometer, on freight shipped from Mexico, diminishes as it goes farther from the Capital. In the main instance brought up, class A, the rate is 12 cents per ton per kilometer from Mexico to Dahu, from Mexico to Queretaro it is 10.83 cents, and from Mexico to Paso del Norte it is 6.68 cents. This is said to unfairly encourage the transportation of American goods. How such a conclusion could be reached from such data is not easily seen. The only reasonable deduction that can be made is that freight can be carried proportionately cheaper a long distance than a short one."

"In preparing a classification the nature of the freight is the ruling principle, and by nature of the freight only its physical qualities are considered, without regard to its origin. Merchandise should be taken as merchandise, no matter where produced. In this matter which also has come under criticism, a false impression is produced, and a discrimination suggested which does not exist, when it is said that a cargo of foreign cotton pays \$55.78 per ton from El Paso to Mexico, while a cargo of native cotton pays \$82.02 per ton from Lerdo to Mexico. This looks like a most unjust ruling, but is simply a misleading statement. The words 'foreign' and 'national' do not occur in the classification nor is that the cause for the difference in price. The reason lies in the difference in packing. If the American cotton were shipped in the condition in which it is taken for granted the native cotton is shipped, the price, instead of being \$55.78 per ton, would be \$132.76 per ton. On the other hand, if the cotton growers near Lerdo will set up a cotton-press at some convenient point, they can ship cotton to Mexico for \$34.55 per ton, a rate much less than that formerly charged."

"The complaint is also made that a great many articles are unwarrantably put in class A. Upon examination these articles will, in every case, be found to be either dangerous, bulky or perishable. It is quite clear that bird-cages cannot be carried as cheaply as lead, since freight is reckoned by weight and not by volume. Many of the goods put in class A are only so reckoned when unpacked, while if they are properly packed they go in a cheaper class."

"The new classification is based upon those in use in the United States, as it was indispensable it should be, if the railroad is to do any through business. For this reason it is also adopted by the Mexican National Railroad. Its aim is to encourage the mutual interchange of products between the two countries by reducing to a minimum the inconveniences of the shipper and importer. The tariff was approved by the government in March, and now it is to be criticised, it should be in a just and fair spirit."

### RAILROAD LAW.

#### Passenger Traveling on Another's Ticket.

In the case of Way, Administrator, against the Chicago, Rock Island & Pacific Co., the Iowa Supreme Court holds as follows:

1. A person who travels on a railroad train on the ticket of another, contrary to the rule of the company printed on the ticket, and without the consent of the company's agents, perpetrates a fraud, and in case of his receiving injuries during the trip the law of common carriers cannot be invoked to make the company responsible.

2. The word "instrument," in the statute relative to the rights and privileges of an assignee, does include a railroad ticket issued to an individual specifically by name, and explicitly denied on its face to any other person.

#### Virginia Railroad Law.

The Virginia gives the following summary of general laws relating to railroads passed by the Virginia Legislature at its last session:

"Railroad crossings, where practicable, are to pass at surface grade, or above or beneath existing structures in such a way as to admit of speedy and safe travel across the track."

"The Sunday railroad trains act prohibits the loading, unloading or running of any trains on Sunday, between sunrise and sunset, unless it be trains for the relief of wrecked trains, for the transportation of the U. S. mail, passengers and their baggage, live stock, or of perishable articles. It imposes a fine of not less than \$50 or more than \$100 for each offense. Trains in transit having started prior to midnight Saturday night, may run to reach shops or a terminus until 9 o'clock the following morning."

"An act to lessen the danger of traveling requires all railways to establish at depots, not more than 10 miles apart, telegraph offices with competent operators to telegraph the arrival and departure of trains to the train-master of the next station; also to erect fences on both sides of their roadbeds through inclosed farms or lots, and keep such fences in repair, and to keep all crossings in order. They are made liable for all stock killed within their fences are put up. This act does not apply to lines within the corporate limits of cities and towns. This act makes it a misdemeanor for any person to walk on a track within 100 yards of an approaching train, except at a public crossing, or for any one to ride, drive or lead any animal upon a railroad track, or to arrange for any animal to be on such a track except in crossing from one side to the other, or to injure railway fences. It makes it a felony for any one to place or contrive to have placed any animal upon the track of a railway by the injury of which he might recover damages."

### OLD AND NEW ROADS.

Allegheny Valley.—A cross-bill was filed last week in the Circuit Court at Greensburg, Pa., by attorneys for a number of income bondholders. The suit is brought by residents of New York, and it is understood that the intention is to have it transferred as soon as possible from the state court to the United States Court in Philadelphia. The bill as filed charges that the Allegheny Valley Co. is controlled absolutely by the Pennsylvania Railroad Co. and is managed in the interest of that company without any voice of its own. It is further charged that an advantageous offer for the lease of the road at a rental which would pay the interest on the entire debt, including the income bonds, and 4 per cent. on the stock was rejected by the vote of the Pennsylvania Railroad Co. against the advantage of the minority stockholders and creditors. While it is admitted that this was legal, so far as the stockholders were concerned, it is claimed that the action was not lawful against the creditors. The bill further charges that interest on the income bonds has been left purposely unpaid, even when there were sufficient funds on hand to pay it, in order to depreciate the value of those bonds so that they could be bought up by interested parties. The bill further claims that the mortgage on the Low Grade Division was not lawfully executed, as it covers a line which in fact differs from the road actually built and



that this defect in the mortgage was not amended by the execution of the second or amended mortgage of 1874. The cross-bill further specifies a number of acts on the part of the Allegheny Valley Railroad Co., which, it is claimed, were not legal, and asks the Court for relief. The object of the bill, it is understood, is to take the road if possible out of the hands of the Pennsylvania Railroad Co. and to have a receiver appointed who will represent the income bondholders.

**Atchison, Topeka & Santa Fe.**—This company has made application to the New York Stock Exchange to have placed on the regular list \$2,500,000 of its recently-issued 6 per cent. sinking fund secured bonds of \$1,000 each, numbered 7,349 to 9,848, dated Dec. 1, 1881, and payable Dec. 1, 1911. The securities deposited in trust against these bonds are as follows: \$350,000 of the first-mortgage 6 per cent. bonds of the Kansas City & Olathe Railroad; \$959,000 of the first-mortgage 6 per cent. bonds of the Kansas City & Emporia Railroad; \$547,000 of the first-mortgage 6 per cent. bonds of the New Mexican Railroad; \$529,000 of the first-mortgage 6 per cent. bonds of the Kansas Southern Railway; \$200,000 of the second-mortgage 6 per cent. bonds of the New Mexico & Southern Pacific Railroad, and \$170,000 of the second-mortgage 6 per cent. bonds of the Wichita & Southwestern Railway, in all \$2,855,000 first-mortgage bonds on branch lines, the stock of which is all owned by the Atchison Co.

It is reported from Boston that the damage to the road by the recent washouts aggregates \$500,000. It will be charged to the current expenses, and thereby will largely decrease the net return for June and July. The gross receipts for June were about the same as those of last year, but it is expected that July will show a loss of \$200,000 in gross earnings as compared with 1883. The prospects for later months of the year are excellent.

**Atlantic, Gulf & Western.**—This company has filed articles of incorporation to build a railroad from the line of the Cincinnati Southern near Rockwood, Tenn., southward by way of Athens to the Georgia state line in Polk County. The distance is about 65 miles. At the state line connection is to be made with a company to be incorporated in Georgia.

**Atlantic & Pacific.**—The new bridge over the Colorado River at the Needles was completed on July 28, and trains are once more running through to San Francisco, without ferry transfer at the river.

**Baltimore & Ohio.**—The Curtis Bay Branch was recently completed and put in operation. It extends from the main line at Camden Junction, 4½ miles from the Camden station in Baltimore, to Curtis Bay, and is 5½ miles long. In this short distance there are no less than six stations—Annapolis Road, Patapsco, Brooklyn, Crisp, Stonehouse Cove and Curtis Bay. The terminus is on the banks of the Patapsco River, and the company is there building wharves, intending to make this its chief coal shipping point. It is also a growing pleasure resort, being of easy access from the city, and having natural advantages.

**Bellaire, Zanesville & Cincinnati.**—The employees of this road struck last week on account of the non-payment of their wages, which are several months in arrears. All movement of trains was stopped, although it is expected that arrangements will be made to run one mail train over the road. Work on the extension of the road has been suspended for some time, although it was very nearly finished to Zanesville.

**Boston & Lowell.**—The directors of the Concord Railroad Co. have approved the traffic contract with this company, and it will at once take effect, dating from July 1 last. The contract has five years to run and, it is understood, is substantially a continuation of the contract under which the through traffic over the two roads has been conducted for some time past, the division of rates and other conditions remaining almost unchanged. A new condition, however, is that the Boston & Lowell Co. shall for the five years operate the Manchester & Keene road, which is owned jointly by the two companies, and that it also shall operate the Nashua, Acton & Boston road, which is owned by the Concord Co., and which has not been a very profitable investment. The Boston & Lowell will at once take possession of that road, and will continue its operation of the Manchester & Keene, over which it already runs trains.

A new contract is to be made in relation to the business between the Concord road and the upper roads leased by the Boston & Lowell, the old contracts having been terminated.

**Buffalo, New York & Philadelphia.**—Mr. G. Clinton Gardner, President of this company, on July 30, under advice of the board of directors, issued a letter to the bondholders of the company, saying that the interest on the bonds had not been earned for the first nine months of the fiscal year of 1884, although the interest has been paid. At this date, counting the \$320,000 in coupons due July 1, the floating debt is approximately, not including car trusts, \$1,709,000. This state of affairs is attributed to the completion of competing lines and the low rates and depressed state of business. If competing lines, however, had not taken business at less than the cost of transportation, the necessity of an appeal to the bondholders would not have been felt. Negotiations are now progressing for a fair distribution of business, and orders have been issued to raise the rate.

The interest charges, the letter continues, maturing this year amount to \$1,419,000, and the total fixed payments per annum are \$1,628,500. The known and estimated earnings for the entire year are \$946,000, leaving the deficiency \$680,500. Nearly all holders of bills payable have agreed to extend them until next year, when a better market is expected to enable the company to dispose of securities to pay them. Except on those bonds on which it has been necessary to pay the interest in full, to keep the property intact, it is now proposed that, beginning Aug. 1, the holders of each class of bonds shall take for the coupons maturing for three full years 3 per cent. in cash and the balance in non-interest-paying scrip, convertible into income bonds when presented in sums of \$500. The income bonds are to run for 20 years and bear 6 per cent. interest when earned. A committee of three acting as trustees to receive the coupons is proposed.

The Philadelphia Record of July 31, says: "Application will be made to the United States Court to-day for the appointment of a receiver for the Buffalo, New York & Philadelphia Railroad Co., and it is presumed that the request will be granted immediately. It has been known for several days past that the company would not be able to meet its interest falling due to-morrow, but the officers of the corporation stated that there might be some arrangement made by which the indebtedness could be paid; half cash and the balance funded. It was concluded yesterday that even this plan could not be carried out, and it was determined to place the property in the hands of a receiver. President Gardner came over from New York on Tuesday and had a long conference with President Roberts, of the Pennsylvania Railroad Co., in reference to the situation, and it is understood they agreed that if a receiver was appointed it should

be some one who would meet the approval of the Pennsylvania. The interest of the latter concern in the matter arises from a holding of \$800,000 of the Warren & Franklin bonds, and the application for the receivership will be made in behalf of this holding."

The company was formed by a consolidation of the Buffalo, New York & Philadelphia and the Buffalo, Pittsburgh & Western, and has always been regarded as a weak company, having a very large amount of stock and bonds issued on a road with comparatively light earnings, its better portions being overweighed with unproductive branches.

**Burlington, Cedar Rapids & Northern.**—On the Dakota extension of this company's road grading is now completed from Lake Park, Ia., the starting point, to Laverne, Minn., about 40 miles, and track has been laid for 20 miles northward from Lake Park. From Laverne to Pipestone, 30 miles, a large force is at work on the grading. Some delay is expected at Pipestone, the Chicago, St. Paul, Minneapolis & Omaha Co. having obtained an injunction to restrain the new company from crossing its right of way at that point.

**Burlington, LaFayette & Western.**—This company which was recently organized, is having a preliminary survey made of its projected line, which is to run from Kokomo, Ind., through LaFayette to Veedersburg, a distance of about 75 miles.

**Central Iowa.**—Proceedings have been begun in the Iowa Circuit Court at Marshalltown to oust Alfred Sully, of New York, as President, and T. T. Phillips, W. C. Hurd, and R. K. Dow as Directors of this company. The complaint charges that they by fraud and conspiracy obtained their own election, and also charges fraud in various contracts in which they were legally interested while members of the board in previous years. The suit is begun at the instance of the Boston stockholders, who, it will be remembered, held a second meeting and cast a majority of the stock in favor of the election of their board; it will determine whether the directors chosen by the Sage party or the Boston stockholders are the legal board of the company.

**Central Pacific.**—This company makes the following statement for the six months ending June 30 last, June partly estimated:

Gross earnings	\$10,588,000
Expenses	7,412,000
Net earnings	\$3,176,000
Repairs of flood damages	\$328,000
Fixed charges	2,650,000
	2,978,000
Balance	\$300,000
Government sinking fund, six months	\$300,000
Company's	352,000
	652,000
Deficiency	\$452,000

Gross earnings include \$234,000 received from the Southern Pacific in settlement of old account. The unfavorable result of the half-year was largely due to the floods of March and June. The consequent charges were not great, but gross earnings decreased and operating expenses increased in consequence of the floods.

The accounts do not include the \$1,500,000 California state aid bonds, which matured July 1, and were then paid off from the sinking fund.

The directors have decided, on account of the result shown above, to pass the August dividend. It is hoped that the second half of the current year will show better results.

**Chicago, Burlington & Kansas City.**—Regular trains on this road are now running to Hale, Mo., six miles southward of the old terminus at Sumner. Work is progressing on the extension of the road beyond Hale.

**Chicago, Burlington & Quincy.**—Denver papers report that this company's engineers have completed surveys of five lines for an extension west of Denver, an outline of which is as follows:

"Route No. 1—Leaving the Burlington & Missouri at Platte Summit, through Erie and Ni Wot up through Left Hand Cañon to Balarat and Gold Hill, and thence through the Ward district. It crosses the divide north of Arapahoe Peak, and enters upon the south fork of the Grand, thence down the Grand Cañon to Hot Sulphur Springs, from which point it follows the Grand River to Grand Junction—the connection with the Denver & Rio Grande Western.

"Route No. 2—From Platte Summit through the Louisville and Marshall coal-fields up to Boulder, crossing Boulder Pass at an elevation of 11,670 ft., and then down Rancho Creek, across the Frazer River, skirting Middle Park to Hot Sulphur Springs, and thence to Grand Junction along the valley of the Grand.

"Route No. 3—From Platte Summit through Longmont and along the Middle Park of the St. Vrain, crossing north of Arapahoe Peak, and thence to Grand Junction via the first route.

"Route No. 4—From Platte Summit to Boulder, up Middle Boulder Creek, crossing Boulder Pass, and continuing as in the second route.

"Route No. 5—From Platte Summit through La Salle Junction, Greeley and Fort Collins, through the mouth of Poudre Cañon, along the Poudre River to Elkhorn and Rustic, through Cameron Pass into North Park, across the Gore range, down one of the branches of the Green River, striking the Denver & Rio Grande Western at Green River station in Utah. The Burlington has the franchise for right of way along this route, but the Union Pacific, in order to get in ahead, has graded its line half way into Middle Park."

All these lines look to a connection with the Denver & Rio Grande Western road. Denver reports are that arrangements are in progress to begin work very soon, but this is doubtful.

**Chicago & Eastern Illinois.**—Notice is given that the new first consolidated 6 per cent. bonds are now ready for exchange for other issues of the company's bonds, including the income bonds. The new bonds have 50 years to run from June 1, 1884, coupons payable April and October, and are issued for the purpose of retiring the outstanding bonds of all classes. The exchange will be made at par, irrespective of interest. Bonds may be presented for exchange at the company's office in Chicago, at the Globe National Bank in Boston, or the Central Trust Co. in New York.

**Chicago, Portage & Superior.**—The case of the Chicago, Portage & Superior Co. against Wm. R. Chadsey came up for argument before the United States Circuit Court in Milwaukee last week. The case affects the title to some 65 miles of right of way and 35 miles of graded line, extending from Superior City, Wis., southeast. This line originally belonged to the old Wisconsin Central Co. (a different organization from the present Wisconsin Central), which was organized in 1853 and did some work on a projected line from Chicago through Portage City to Lake Superior. In 1873 the Chicago & Northern Pacific Air Line Co. was incorporated to build the road and obtained the title from the bondholders of the old Central Co., on condition that the

road was completed. This company subsequently changed its name to the Chicago, Portage & Superior and entered into certain contracts for the construction of the road under which some more grading was done. Subsequently a large part of the stock was sold to the Chicago, St. Paul, Minneapolis & Omaha road, and the present suit appears to be brought to settle the title of that company to the property, which is claimed on account of a foreclosure sale held in 1883 under the mortgage given by the original company.

**Chicago, St. Paul, Minneapolis & Omaha.**—Grading is in progress on an extension of the Woodstock Branch from Woodstock, Minn., westward to Pipestone, 11 miles.

**Cincinnati, New Orleans & Texas Pacific.**—At a meeting of the Cincinnati Southern trustees last week the following resolution was adopted by a vote of four to one:

"Resolved, That it is the sense of this Board that the gauge of the Cincinnati Southern Railway should be changed from 5 ft. to 4 ft. 8½ in., and that the Attorney for the Board be, and he is hereby, instructed to prepare a license embodying the terms and conditions as will be directed by the Board, upon which the Board will grant its consent to such a change, and to submit said license for the consideration of the Board."

The dissenting trustee held that the Board had not the legal right to permit a change. The license will stipulate that all the roads controlled by the lessee must be changed to standard gauge if the Southern is, and that the change on the Southern must be made at the expense of the lessees.

**Columbus & Cincinnati Midland.**—Grading is nearly completed on the whole length of this line from Columbus, O., southwest to Clinton Valley, 70 miles, and tracklaying is in progress, the rails being reported down from Columbus to Washington Court House, 45 miles. The road is controlled by the Baltimore & Ohio, being a cross-cut from its Central Ohio line at Columbus to the Cincinnati, Washington & Baltimore and completing a new line from Pittsburgh and Wheeling to Cincinnati.

**Concord.**—Under the new traffic contract which has just been ratified with the Boston & Lowell Co., the Concord Co. still retains the entire management of its own lines, the contract not being in the nature of a lease or an operating agreement. The Concord Co., as stated, continues the management of all of its own lines, with the sole exception of the Nashua, Acton & Boston, which is transferred to the Boston & Lowell as part of the agreement. It is provided, however, that each company shall contribute to the other all the business that it can, so that the through business will continue to pass by way of Nashua and will not be diverted to the Fitchburg by way of Acton or to the Boston & Maine by way of Lawrence, as the Concord Co. had it in its power to do.

**Danville & New River.**—Track is now laid to Patrick Court House, Va., 19 miles westward from last year's terminus at Spencer, and 75 miles from Danville. The first train ran through to the new terminus on July 29. The road has been built almost entirely by local capital, receiving considerable subsidies from the counties on the line, and extends into a section of country heretofore entirely without railroad facilities.

**Duluth & Iron Range.**—Track on this road is now laid from Two Harbors, on Lake Superior, north to Tower, on Vermillion Lake, a distance of 68 miles, completing this division of the road. Work is progressing actively in the mines at Tower, and there are already 20,000 tons of iron ore ready for shipment as soon as the road is completed. Contracts have been made for the transportation of 100,000 tons of ore by water from Two Harbors to Cleveland this season.

**Greenville & Laurens.**—The preliminary survey of what is known as the Marietta route of this projected road from Greenville, S. C., to Laurens has been completed, and a very good line has been found.

**Gulf, Colorado & Santa Fe.**—Col. W. Q. Gresham, Attorney for this company, was interviewed recently by a reporter of the Fort Worth (Tex.) Gazette about the coming extension of the road north, from Fort Worth through the Indian Territory. The colonel said there was trouble getting the bill through Congress, but the measure was finally passed. "The chief opposition," he said, "purported to come from the Indians in the territory, but this was probably the opposition of rival corporations. Senator Coke says it is the most liberal bill of the kind that he ever knew of. It imposes no conditions upon the company, except that the proposed extension shall enter the territory at some point in Cooke County. After entering the territory the company can build in any direction it chooses and make any connections which will be the most desirable. Three years of time is granted, in which only 100 miles of road in the territory must be built, which secures the right of way for all time to come. The road will be laid off in sections of 25 miles each, with the nominal approval of the Secretary of the Interior, and may extend in any direction.

"Connections can be made with the Atchison, Topeka & Santa Fe and the St. Louis & San Francisco roads. A connection with the latter at Vinita would make the distance from Fort Worth by this route to St. Louis about 75 miles shorter than any other now in existence. I am not prepared to say which connection will be made."

To the question, "Will the Atchison, Topeka & Santa Fe and the Gulf, Colorado & Santa Fe pool issues in building through the territory?" Colonel Gresham replied: "Such a possibility has been talked of, but that is a question to be determined by the companies. The Atchison, Topeka & Santa Fe has a right of way through the territory from a town north of Kansas City southwest so as to strike the Panhandle country. It also has another at Denison. It is possible that these roads may pool issues, but one thing is sure, and that is, the Santa Fe will be built through the territory, and the probability is that it will enter Kansas east of Arkansas City."

Colonel Gresham was not certain when the work of extension from Fort Worth would begin. It will take some time to get ready to commence active operations.

In speaking of the prospects of the Santa Fe Colonel Gresham said that on Nov. 1 next the road would have another right-of-way through the territory from Paris, Tex., to Fort Smith, Ark., which had two years ago been granted to the St. Louis & San Francisco road, and which accrues to the Santa Fe as the successor of the Chicago, Texas & Mexican Central road.

**Isthmus Pacific.**—This company has been organized in New York for the purpose of constructing a railroad from a point on the Chiriqui Lagoon in the state of Panama (Colombia) southward to Golfito on the Pacific coast of Costa Rica. The company also proposes to operate steamships and sailing vessels in connection with its railroad. The capital stock is fixed at \$12,000,000, and the principal office is to be in New York city.

**Long Island.**—The gross earnings of this road for the nine months of its fiscal year, from October 1 to June 30, were \$1,686,818 against \$1,625,745 for the corresponding



period last year, \$1,424,996 in 1881-'82 and \$1,164,687 in 1880-'81. The nine months of the current year therefore show a gain over last year of \$61,073, or 3.8 per cent.; over 1881-'82 of \$261,822, or 18.4 per cent., and over 1880-'81 of \$522,131, or 44.8 per cent.

**Lookout Mountain.**—Col. E. W. Cole, formerly of the Nashville & Chattanooga road, as representative of a Nashville syndicate, has bought a large tract of property on Lookout Mountain near Chattanooga. It is proposed to build a railroad from Chattanooga up the mountain with a centre rail on the plan of the Mount Washington Railroad, and also to build a large hotel at the summit.

**Louisville & Nashville.**—For the past week or so there has been an unexpected rise in the stock of this company, and it has been actively bought, apparently by parties who intend to hold it. Concerning this the *Commercial and Financial Chronicle* says: "In regard to the rise in Louisville & Nashville stock no precise information was obtainable. Brokers attributed the rise in the stock to buying for London account, and it was stated in reliable quarters that a control of the road had been secured in England, where 138,000 out of 250,000 shares were held. It was further stated that the management of the road would be remodeled on the plan found most successful in the operation of railroads in England, by which foreclosures and the wiping out of stocks and junior bonds are done away with."

The resignations of Messrs. Gould, Sage, Ryan, Baldwin and Green as directors, which were tendered some time ago, have been accepted by the Board. The new directors chosen in their places represent the larger holders of securities of the company, including the German and English bondholders. It is expected that at the annual election in October still further changes will be made. The Board has under consideration arrangements for the funding of the floating debt, but their plan is not yet completed.

**Mexican Railroad Notes.**—Work is to be begun in August on the railroad from Lagos to Guadalajara.

Work was begun July 1 on the railroad from Merida to Motule-Izamal in Yucatan.

Plans and location have been completed of the San Juan Bautista, Astata & Pamulte road, commonly known as the Tabasco road.

The *Two Republics* of recent date says: "The inspector of the Tampico Railroad has submitted the following report: In consequence of the severe rains, during the month ending June 15, travel has been light. The work has also been somewhat checked. Notwithstanding, the road in Boca del Abra is being rapidly ironed, and the terracing in the Cañon de Guerrero has scarcely ceased for an hour during working hours. In the Eastern Division 50 cubic metres of solid rock and 52 of loose rock have been removed; 10,103 cubic metres of earthworks have been thrown up, and 8,139 of rough masonry. Railed track, 1.83 kilometres. In the Division of the Mountain 135 cubic metres of earthwork have been finished, and 1,363 of excavations for tunnels. On the Eastern Division 348 men were employed and 612 among the mountains."

The following notes are from the *Mexican Financier* of July 15:

The Puebla & Texmelucan Railroad carried 11,411 passengers in the month of June.

A street railway is to be built from San Luis Potosi to Tequiquipam.

The concession granted the state of Vera Cruz for a railroad from Camaron to Huatusco has been declared forfeited from failure to fulfill conditions.

The Rio Grande is at last falling, and the Mexican Central Railway expect to run their trains across the river on the 21st inst. Two pile-drivers and a large force of men are working under the personal oversight of Superintendent Mackenzie. Until within a few days it has been impossible to work on account of the high water; the energetic manner in which the work has been pushed is highly commendable. One cause of the loss of the former bridge, aside from high water, was the gradual shifting of the current of the river from one side to the other, uncovering a layer of quicksand and undermining the foundations of the bridge.

**Milwaukee, Lake Shore & Western.**—A contract has been signed between this company and the citizens of Ashland, Wis., which secures the terminus of the road to that city. The company receives as a bonus a large tract of land in that city for depot grounds, with an excellent water front for its ore and coal docks.

A contract has been let to Daniel & Richard for the grading of the road from the Montreal River, the boundary line between Michigan and Wisconsin, to Ashland, the work to be done by July 1, 1885. Engineers are now making the final location of the line, and the contractors will begin work very soon.

**Missouri, Kansas & Texas.**—The statement published for this road gives the following figures for the six months ending June 30:

	1884.	1883.	Inc. or Dec.	P. c.
Earnings.....	\$3,265,849	\$3,317,432	D. \$51,583	1.6
Expenses.....	2,266,624	2,297,111	D. 30,487	1.3
Net earnings..	\$999,225	\$1,020,321	D. \$21,096	2.1
Per cent. of exps....	69.4	69.2	I. 0.2	...

The first half of the year is usually the period of lightest earnings on this road.

**Missouri Pacific.**—This company makes the following statement for the six months ending June 30, including the Missouri Pacific proper and the Iron Mountain lines, 1,895 miles of road:

	1884.	1883.	Inc. or Dec.	P. c.
Earnings.....	\$7,636,226	\$7,651,259	D. \$15,033	0.2
Expenses.....	4,360,529	4,708,852	D. 348,323	7.4
Net earnings.....	\$3,275,697	\$2,942,407	I. \$333,290	11.3
Per cent. of exps....	57.1	61.5	D. 4.4	...

The gross receipts for the month of June this year were \$1,208,258; the expenses were \$692,554 and the net earnings \$515,704. The earnings for June last year are not given.

**Mount Vernon, Coshocton & Wheeling.**—Surveys are being made for this road from Newcomerstown, O., to Wheeling, and the company hopes to begin work shortly.

**Nashville & Huntsville.**—The survey and location of this road has been completed, and the managers of the company are endeavoring to secure subscriptions in Nashville, Tenn. The road is to run from Elora, Tenn., on the Fayetteville Branch of the Nashville, Chattanooga & St. Louis, southward to Huntsville, Ala., a distance of about 20 miles. It will complete a line between Nashville and Huntsville much shorter than any now in use, and will open up to Nashville trade a considerable section of country.

**New York, Lake Erie & Western.**—This company has applied to the New York Supreme Court for a writ of mandamus directing the city tax commissioners to abate the tax assessed upon its personal property for the year 1882, and to remove the same from the rolls. That year the value of the personal property was found by taking the value assessed on the real estate from the par value of the capital stock of the company, but, according to a subsequent decision

of the Court of Appeals, the value of the real estate should have been deducted from the market value of the capital stock instead of the par value. This rule was followed in 1883 and no personal tax was then found to be due, and the company claims that under this decision no tax is really due from it for 1882.

**New York & New England.**—The Receiver is now paying the interest of the second-mortgage bonds which became due Feb. 1 last. Another coupon is due Aug. 1, but it is not certain when that will be paid.

**New York, New Haven & Hartford.**—The Springfield (Mass.) *Republican* says: "The Consolidated road has laid crushed stone ballast on both the tracks from North Haven to within a mile or two of Hartford, and will continue the work toward this city at a rate of a mile a month. The stone is trap-rock, obtained from a quarry near Meriden, Conn., and broken to the size of a walnut. Before laying it all unbound ties are replaced, new needle safety switches put in, and worn rails taken out. A section of track is then blocked up a foot or more, and a construction train dumps sufficient stone ballast to raise the whole section to this grade, making a foot of loose stone below the rails, with the same material between the ties. In connection with this work the grade of the road is being lessened wherever possible by slightly increasing the depth of a cut or height of a fill. This improvement costs about \$8,000 a mile, and will do away with the dust which has troubled travelers so much during the summer months. Owing to interference with the many regular trains only two construction trains can be used in laying the new ballast, and as it is put down 50 ft. wide to cover both tracks, the progress made is necessarily slow. The new wrought-iron two-track bridge over the Housatonic River is approaching completion and will be 1,100 ft. long and cost about \$150,000."

**New York, West Shore & Buffalo.**—A meeting of holders of first-mortgage bonds has been called for Aug. 5, in New York, by the United States Trust Co., as trustees. The meeting is called for consultation, in order that the trustees may ascertain the wishes of the bondholders before proceeding further with the foreclosure suit.

**Norfolk & Western.**—This company's statement for June and the six months ending June 30 is as follows:

	June.	1883.	1884.	1883.
Earnings.....	\$183,868	\$203,609	\$124,502	\$129,435
Expenses.....	126,615	119,530	787,753	707,469
Net earnings..	\$57,253	\$84,079	\$458,749	\$501,926
Per cent. of exps....	69	59	63	58

For the six months the gross earnings show a gain of \$37,067, or 3 per cent., and the net earnings a decrease of \$43,187, or 9 per cent. The New River Division (75 miles) was opened for traffic May 21, 1883. The statement says:

"The decrease of gross earnings in June, 1884, is due to the prevailing low rates, to the falling off in all through business, and to the interruption of the movement of iron ore and pig-iron caused by the temporary shutting down of furnaces for repairs subsequent to the Pocahontas mine explosion."

"Current business is impeded by the indisposition of shippers to move the large crops of the present year during the prevalence of the low prices incident to a period of financial depression."

**Northern Central.**—This company's statement for June and the six months ending June 30 is as follows:

	June.	1883.	1884.	1883.
Earnings.....	\$416,635	\$476,164	\$2,620,255	\$2,944,614
Working exps....	\$261,409	\$280,985	\$1,500,209	\$1,650,679
Extraordinary exps..	18,597	16,935	171,703	216,381
Total exps.....	\$280,006	\$297,920	\$1,671,912	\$1,867,060
Net earnings..	\$136,629	\$178,244	\$948,343	\$1,077,554

For the six months this shows a decrease in gross earnings of \$324,359, or 11.0 per cent. There was a decrease both in working expenses and in extraordinary expenses, the reduction in the total expenses being \$195,148, or 10.4 per cent., the result being a decrease of \$129,211, or 12.0 per cent., in net earnings.

**Northern (New Hampshire).**—In Concord, N. H., July 28, the plaintiffs in the suit to set aside the lease of this road to the Boston & Lowell, filed an application in the Supreme Court, complaining that the recent order directing that the accounts of the Northern Railroad be kept separately during the continuance of the suit, has not been observed, and requesting an investigation into the matter; also a further order to prevent the transfer of property of the Northern Co. out of the state, and its confusion with that of the Boston & Lowell Co. The Court reserved decision.

**North Pennsylvania.**—It is announced that Drexel & Co., of Philadelphia, have taken a sufficient amount of this company's 7 per cent. general mortgage bonds to provide for the payment of the first-mortgage 6 per cent. bonds which will mature Jan. 1 next. On the payment of the first mortgage bonds the general mortgage will have a second lien on the main line of the road and a first lien on the Delaware River Branch.

**Pennsylvania Company.**—The Pittsburgh *Chronicle-Telegraph* of July 25 says: "An important move in freight handling is now being consummated by the Pennsylvania Company. This move will embrace the majority of the lines controlled by that company which enter this city. When the plans now being pushed forward are completed, the vast freight business from the East and West which centres in Pittsburgh will all be done at another point. For a long time past all the through freight, which formerly went on the Pennsylvania Railroad, has been taken over the West Penn, which has been straightened and the heavy grades reduced to still further facilitate the enormous increase in freight traffic thus thrust upon it. The reasons for this change were many. The grades on the West Penn are much less than on the Pennsylvania Railroad, and on the former one locomotive can do the work of three on the latter. The passenger traffic has also grown to such dimensions on the Pennsylvania Railroad that all the yard room at command is needed for this class of business. The intention is to consolidate all the freight business at one point, and ground has already been purchased and work commenced with this object in view."

"The property purchased consists of 125 acres, adjoining and east of the town of Freedom, Beaver County. A stretch of gently rolling bottom land, running for three miles along the Ohio, and varying in width from 480 ft. to almost half a mile at the widest portion, has been selected as the place for the monster freight yard. The boundaries are the railroad and river on the sides and Conway station and Freedom at the ends. The purchase was made from Mr. John Conway, of the Rochester Bank. From him some details were obtained to-day. Said Mr. Conway:

"The railroad officials have expended \$104,000 thus far

in the purchase of real estate, and the total outlay for ground and improvements will not be short of \$1,000,000 or \$1,500,000. A large force of men is at work now on the property and some of the improvements are already completed. A portion of the flat has been graded, a new county road has been built on the hillside above it, and Crow's Run, which flows through the property, has been bridged. A large reservoir has been constructed on the hilltop, and two more are contemplated. The intention, as I was reliably informed, is to make a monster freight station on the property, where all trains for the South, West and North will be made up. All trains coming from the West and on the way East will be made up here, and will go through from this point without a break. Round-houses and repair shops will be built. Whether or not these will cause the removal of the shops from Allegheny, I am unable to say."

"Is not the property to be used for stock-yard purposes also, Mr. Conway?"

"I hardly think so, as the character of the ground would scarcely admit of such use, as it is too narrow. It may be that the stock yards are to be put in conjunction with the freight yards, but I hardly think so, although I have no reason to believe such is not the case."

"Continuing, Mr. Conway said: This work straightens one of the worst and most crooked pieces of road along the line, and gives an air line for five miles between Baden and Freedom. The entire plot of ground will be filled to an average depth of 12 ft. Nineteen tracks will be built, with capacity of from 5,000 to 7,000 cars at once. In connection with the yard a new broad gauge railroad running up Crow's Run for two miles has been built by Park Bros. at a cost of about \$50,000. This road opens up a number of new mines and quarries and a section of country not reached heretofore. As I understand it," concluded Mr. Conway, "the plan contemplates the entire reconstruction of the greater part of the freight business in the vicinity."

"In the course of the conversation it was incidentally mentioned that the property is on the natural gas belt. The well of the Rochester Tumbler Co. is close by it, and a new one is now down to a depth of 200 ft. Gas has been found, but not in large quantities, and the intention is to drill deeper."

**Philadelphia & Atlantic City.**—The work of laying a standard-gauge track on this road has been completed. The narrow-gauge rails have been left in place between the new rails, and the narrow-gauge equipment is still used, the standard-gauge cars not being ready.

**Philadelphia & Reading.**—The Master's audit of the Receivers' accounts from June 3, the date of their appointment, to June 30, is as follows:

	Railroad Co.	C. & I. Co.
Balance, June 3.....	\$10,000	\$9,108
Receipts from all sources.....	2,143,589	994,247
Total.....	\$2,153,589	\$1,003,355
Disbursements on all accounts.....	2,916,018	1,001,176

Balance, July 1.....\$237,571 \$2,179  
This statement, of course, gives only the cash transactions of the Receivers, and does not show the earnings and expenses of the properties.

The statement of operations for June and the seven months of the company's fiscal year from Dec. 1 to June 30 gives the earnings of the railroad as follows:

	1884.	1883.	Inc. or Dec.	P. c.
Earnings.....	\$2,148,703	\$2,810,489	D. \$661,786	23.6
Expenses.....	1,250,836	1,599,202	D. \$348,366	21.8
Net earnings.....	\$897,867	\$1,210,987	D. \$313,000	25.8
Seven Months:				
Earnings.....	16,516,306	12,761,234	I. 3,755,072	29.4
Expenses.....	10,123,911	7,295,240	I. 2,828,671	38.8
Net earnings.....	\$6,392,395	\$5,465,994	I. \$926,401	16.9

For the first time the statement for the month includes the earnings of the New Jersey Central lines in both years. For the seven months the statement includes the New Jersey Central for the whole of this year, but for one month only last year, the lease dating from June 1, 1883. Heretofore the monthly reports have given the New Jersey Central earnings separately, as well as in the general statement, showing not only earnings of that line, but also the rental paid. For June this information is not given, and there are no means of ascertaining whether the operation of the leased line resulted in a profit or a loss.

The traffic of the road was as follows, including, as above, the New Jersey Central for all of this year, but for June only in 1883:

	June.	1883.	Seven months.	1883.
Passengers.....	1,775,151	1,024,346	13,242,590	7,713,046
Tons merchandise....	686,420	818,956	5,113,739	4,157,709
Tons coal.....	760,834	1,092,513	5,026,315	4,984,897
Tons coal on colliers..	40,636	44,871	300,826	290,563

The month shows a considerable falling off in traffic. For the seven months there is a large apparent increase, all of it, however, coming from the addition of the Central lines this year. The large decrease in the June coal traffic explains much of the decrease in earnings.

The earnings of the Philadelphia & Reading Coal & Iron Co. were as follows:

	June.	1883.	Seven months.	1883.
Earnings.....	\$1,083,357	\$1,548,732	\$8,194,374	\$8,241,636
Expenses.....	1,110,842	1,522,456	8,613,936	8,156,405
Net or deficit.....	D. \$27,485	N. \$26,276	D. \$419,562	N. \$85,331

For the seven months there was a decrease of \$77,262, or 0.9 per cent., in gross receipts, with an increase of \$457,531, or 5.6 per cent., in expenses, replacing the small net earnings of last year by a large deficit this year, making a total net difference of \$534,793.

The coal mined from the company's lands was as follows:

	June.	1883.	Seven months.	1883.
By Coal & Iron Co..	289,922	369,320	2,246,312	2,194,622
By tenants.....	51,959	119,765	409,256	609,396
Total.....	341,871	489,085	2,655,568	3,003,988

It is noticeable that while the coal mined for the seven months shows a decrease of 348,420 tons, or 11.6 per cent., the coal mined by the company shows an increase of 51,690 tons, or 2.4 per cent., the decrease being in coal mined by tenants, which fell off nearly one-half.

The earnings of the two companies together were as follows, the New Jersey Central being included as above, in June of both years, but for one month only out of the seven last year:

	June.	1883.	Seven months.	1883.
Earnings.....	\$3,232,120	\$4,359,221	\$24,080,080	\$21,002,870
Expenses.....	2,361,078	3,121,958	18,737,547	15,451,645
Net earnings.....	\$870,442	\$1,237,263	\$5,342,533	\$5,551,225

This shows for the seven months a gain of \$8,677,810, or 17.5 per cent., in gross earnings, and of \$391,008, or 7.1 per cent., in net earnings, the increase coming entirely from the Central. For June, on the same properties in both years, there was a decrease of \$1,197,101, or 25.8 per cent., in



gross receipts and of \$366,831, or 29.6 per cent., in net earnings.

The expenses above do not include anything for interest or rentals. The New Jersey Central rental for the six months to May 31 this year, was \$2,988,347; for June it is not given, but must have been nearly the same as for May, making it for the seven months about \$3,465,000. Deducting this amount from the net earnings as an entirely additional charge (and also deducting the June rental last year), the result shows for the seven months a decrease of no less than \$2,649,456, or 51.7 per cent., in the earnings applicable to the payment of the fixed charges of the two Reading companies.

**Pittsburgh, Cleveland & Toledo.**—The following circular has been issued by C. H. Andrews, President of this company:

"The equipment, property, rights and franchises of this company having been leased to the Pittsburgh & Western Railroad Co., on and after July 15 this road will be operated by that company as lessee. Officers and agents of this company will report to and receive their orders from proper officers of Pittsburgh & Western Railroad Co. All receipts up to and including July 14 will be reported to the Pittsburgh, Cleveland & Toledo Railroad Co., and all expenditures for operating and maintaining road to that period will be assumed by this company."

This lease confirms the statement of the purchase of a controlling interest in this road by the Baltimore & Ohio. The road extends from New Castle, Pa., to Akron, O., 78 miles.

**Pittsburgh & Western.**—The following circular has been issued by James Callery, President of this company:

"The equipment, property, rights and franchises of the Pittsburgh, Cleveland & Toledo Railroad Co. having been this day (July 15) leased to the Pittsburgh & Western Railroad Co., it will hereafter be operated by this company as its lessee. Freight balances due from connecting lines for business from and including July 15, will be remitted to the Assistant Treasurer of the Pittsburgh & Western Railroad, Allegheny, Pa., and all other communications pertaining to the accounts of the road will be addressed to the heads of the departments of the Pittsburgh & Western Railroad."

This lease gives the Pittsburgh & Western a line from Pittsburgh to Akron, O., 138 miles, which is controlled by the Baltimore & Ohio. An extension from Akron west to Chicago Junction, about 60 miles, will very probably be built, giving the Baltimore & Ohio a line from Pittsburgh to Chicago about the same length as the Fort Wayne road.

**Port Royal & Detroit River.**—Surveys are being made for this projected line, which is to run from Port Royal in Norfolk County, Ont., to a point on the Detroit River. Arrangements have been made for consolidation with another company known as the Port Rowan & Lake Shore, the charters of the two companies covering a through line from the Niagara River at Fort Erie to a point on the Detroit River, nearly parallel to the Canada Southern and the Grand Trunk Air Line. The whole line from the Niagara to the Detroit River is now to be located.

**Rutland.**—The Boston *Advertiser* of July 30 says: "The equity suit between Charles Clement & Sons, of Rutland, and the Rutland Railroad Co., brought by them before they obtained control of the company, and in which they seek to hold the company responsible for a large overissue of stock purchased and paid for by them from J. M. Haven, who dealt with them as an individual, though he was Treasurer of the company, has been nearly made up, so far as taking the testimony is concerned, and the expectation is that it will be heard by the Supreme Court of Vermont early in the winter. The interests of the company are in control of a committee of the directors, and are not prejudiced by the fact that the Clements control the company. It is claimed on the part of the committee that the issue was unauthorized and fraudulent, and that the purchasers had sufficient notice of irregularity to put them upon inquiry. They bought of an individual, and did not even look at the record to see if he had any to sell. On the other hand, it is claimed that Haven issued the certificates as an officer of the company, in regular course of business, and there was no reason to doubt their genuineness, as there had been none to suspect that he had not the stock to sell. There is, possibly, a further complication, arising from the fact that after issuing the certificates, Haven bought stock which he intended, as he claims, to turn in for them, but for some reason did not, and the old certificates were not canceled. Under a prosecution for the overissue, Haven was acquitted, and it is claimed by the Clements that if his act was not criminal it was binding upon the company. The case is considered rather a nice and close one, and the decision will be awaited with interest."

**St. John Bridge.**—Work on the new bridge over the St. John River, at St. John, N. B., has been impeded by high water, but is progressing favorably. A considerable portion of the iron work for the trestle at the west end has arrived from Montreal; the false-work for the trestle is up to its level, which is 62 ft. from the ground. Its length is to be 450 ft., and the spans 30 and 60 ft. in length. In two weeks the trestle will, it is expected, be so far advanced that the projections of the western cantilever will be begun.

**St. Louis & San Francisco.**—Tracklaying has been begun on the new branch of this road to Bolivar, Mo., and is to be pushed forward as rapidly as the grading is completed. The company expects to have the branch in operation by September.

**Toledo, Cincinnati & St. Louis.**—The following circular was issued by W. J. Craig, Receiver, under date of July 22:

"The Southeastern Division of this road having been sold by the United States Circuit Court, and the same having been conveyed to the Purchasing Committee, the said division is hereby turned over to said committee, who will have charge thereof on and after this date."

On the same date the following circular was issued by the Purchasing Committee (N. B. Mansfield, Edwin Morey, Wm. A. Haskell, J. M. Prendergast, J. F. Kimball and Austin Corbin) through their agent and attorney, C. W. Fairbanks:

"Notice is hereby given that we have this day assumed possession of the Southeastern Division of the Toledo, Cincinnati & St. Louis Railroad, having purchased the same at foreclosure sale. The operation of the road is placed under the charge of C. E. Henderson, as General Manager for the purchasers."

This additional circular was issued by Receiver Craig on July 24: "The Dayton Division of this road having been sold by the United States Circuit Court, and the same having been conveyed to the Purchasing Committee, the said division is hereby turned over to said committee, who will have charge thereof on and after this date."

On the same date the following circular was issued by C. W. Fairbanks as Agent and Attorney for the Purchasing Committee (Irving A. Evans, A. A. Pope, Alfred Sully, Lyman D. Stevens and E. L. Motte): "Notice is hereby given that we have this day assumed possession of the Day-

ton Division of the Toledo, Cincinnati & St. Louis Railroad, having purchased the same at foreclosure sale. The operation of the road is placed under the charge of C. E. Henderson as General Manager for the Purchasers."

**Texas & Pacific.**—A circular issued by this company to its bondholders gives the liabilities of the company on July 1 as follows:

Debit balance in favor of the Missouri Pacific Co. in current account (less amount to be received on pools, awaiting decision of arbitrators).....\$523,000  
Missouri Pacific Railway Co. coupons brought.....  
Coupons maturing June 1, on \$9,131,000 consolidated bonds on the Eastern Division.....273,930  
Coupons maturing July 1, on \$6,720,000 New Orleans Pacific bonds.....201,600

Total coupons purchased.....\$475,530

The coupons so purchased are held alive and uncanceled under the lien of the mortgage, but subject to redemption by the Texas & Pacific Railway Company at any time.

The Texas & Pacific Railway Co. also owes for money borrowed on its own obligations.....\$300,000  
It appears, therefore, that on July 1, 1884, the total floating indebtedness of the Texas & Pacific Railway Co. was, exclusive of maturing interest and taxes.....\$1,298,530

The assets of the company that can be used in liquidating this indebtedness, but which now, owing to the condition of the market, are unavailable, are reported as follows:

Missouri Kansas & Texas general mortgage bonds.....\$264,000  
Consolidated mortgage Texas & Pacific bonds.....90,000  
Income and land grant Texas & Pacific bonds.....68,000  
Texas & Pacific Rio Grande Division bonds.....98,000  
Dallas city bonds.....24,000  
Sherman town bonds.....18,396  
Fond du Lac & Gros-Tete Levee bonds.....10,400  
Interest scrip income bonds.....14,380  
Note: receivable for donated lands and town lots sold.....130,000  
Unmortgaged lands, 70,000 acres, \$3.50 per acre, estimated.....152,000  
Town lot properties on line of road, including lands and town lots in Fort Worth and El Paso, estimated.....200,000  
Gordon coal mine, including six miles of track, cost.....140,000  
Texas & Pacific stock, 5,377 shares received from contractors in final settlement, par value.....537,700

Total available assets.....\$1,717,376

During the remainder of the year 1884 the fixed charged payments of the company will mature as follows: Aug. 1, coupons, \$390,840; Sept. 1, coupons, \$119,070; Dec. 1, coupons, \$273,980; Dec. 31, coupons (payable Jan. 1, 1885), \$201,600—total, \$985,540.

The net earnings from transportation during five months from Aug. 1 to Dec. 31, accepting the traffic of last year as the basis for our estimate, will give \$903,700.

The net deficit in transportation earnings proper during 1883 was \$513,730, which was, however, reduced to \$174,409 by receipts of the company from sales of donated lands and town lots, \$163,987; by dividends received, \$61,017; from other sources, \$114,367; total, \$339,321.

The directors state that the extraordinary expenses and loss of revenue of the New Orleans Pacific Division during the current year by reason of the breaks occasioned by high water in Louisiana will be very large, and it is probable that the revenue for 1884 will be much less than that for 1883. The working expenses in 1883 were large, being 76.6 per cent. of the gross earnings. The country along the line is growing rapidly and the business of the road increasing, but the expenses must continue very large unless the road can be put into better condition.

The following estimate of extraordinary expenses necessary to secure a more economical working of the company's property has been submitted by officers in charge. These estimates show that during 1884 there should be expended upon the property:

For extraordinary repairs on the New Orleans Pacific Division, for bridging Davis Crevasse and raising track above high water of 1882 (the highest ever known).....\$509,361  
For 22½ miles of steel rail replacements on N. O. P. Div. 65,985  
For 102¼ miles of steel replacements on Rio Grande Div. 297,578  
For filling in and replacement of trestles on Rio G. Div. 100,000  
For 64½ miles of steel replacements on Eastern Div. 187,728

Total extraordinary expenditures on three divisions during 1884.....\$1,160,652

For extraordinary expenditures, including 217½ miles of steel replacements on the three divisions during 1885.....\$819,776  
For 180½ miles steel rail on the three divisions during 1886.....400,280  
For 112½ miles steel rail on N. O. P. and R. G. divisions during 1887.....272,550

Total during the four years.....\$2,713,260

By divisions these expenditures would be:

New Orleans Pacific Division.....\$1,061,758  
Rio Grande Division.....1,088,320  
Eastern Division.....563,184

Total.....\$2,713,260

The officers in charge report that these expenditures will raise the New Orleans Pacific Division above the high water of 1882 (the highest ever known); will fill in and permanently replace three high trestles on the Rio Grande Division, and will relay with steel 715½ miles of track, making in all 1,012 miles of steel track replacement (70 per cent. of the entire line), all thoroughly ballasted and with an equipment of 165 locomotive engines and 3,022 cars owned absolutely by the company, free and clear from all car trusts or lien of the builders.

To provide for these expenditures and for the proper repair of the road it is proposed to make a general issue of mortgage and terminal bonds not to exceed \$8,500,000 in amount, which will make the entire mortgage debt, excluding land grant bonds, \$26,500 per mile of road with a yearly interest charge of \$1,590 per mile. The new issue of bonds will be a first mortgage on the terminal property in New Orleans, on the leasehold interest in the line between El Paso and Sierra Blanco, 92 miles, and on the coal property of the road. It will be a second mortgage on the New Orleans Pacific and the Rio Grande divisions, and will have a lien on the Eastern Division subject to prior mortgages of \$25,000 per mile.

It is proposed that the new issue of bonds be disposed of as follows: To holders of New Orleans Pacific bonds for one-half of each of nine coupons commencing Jan. 1, 1885 (the other half coupons to be paid in cash), \$907,200; holders of Rio Grande Division bonds in payment of one-half of each of nine coupons beginning Aug. 1, 1884 (the other half coupons to be paid in cash), \$1,758,750; to holders of Texas & Pacific Eastern Division consolidated bonds, in payment of one-half of each of four coupons beginning Dec. 1, 1884 (the other half coupons to be paid in cash), \$547,860. The remaining bonds will be issued for equipment, steel rails, and other repairs and improvements as authorized by the board.

The directors believe that under this arrangement the interest on the new bonds can be promptly met. With all the coupons funded as proposed, the interest charge for the first year will be \$127,894; for the second year, \$181,876; for the third year, \$217,422; and for the fourth year, \$252,

968. The total charge to be increased to \$392,910 yearly after all the bonds shall have been sold or disposed of.

In accordance with this plan, holders of coupons maturing Aug. 1 will receive one-half of each coupon in cash and the other half in scrip, convertible into the new bonds at par in sums of \$500. The new bonds will carry interest at the rate of 6 per cent. from Oct. 1, 1884, payable semi-annually, and will be issued in exchange for the scrip with the maturing coupon attached.

**Union Pacific.**—Tracklaying was completed on July 12 on the Stuart Branch of the Utah & Northern line. This branch is 9 miles long, extending from Stuart, Mon., to Anaconda. It is of 3-ft. gauge, like the main line of the division with which it connects.

In the Credit Mobilier suit in the United States Circuit Court in Philadelphia, on July 28, Mr. Samuel R. Shipley was made Receiver of the Credit Mobilier in place of Mr. Oliver Ames, retired on his own petition.

The Boston *Advertiser* says: "The Union Pacific Land Department recently closed a sale of 450,000 acres of land in Wyoming to the Swan Land & Cattle Co., a corporation which is now considered the strongest and wealthiest in the West. This land embraces all the railroad land north, to the 20-mile limit, from a point near Niser station and west to the Platte River near Fort Steele. By the provisions of the sale the present settlers on the land can purchase what they now occupy at a reasonable price. Another company has been formed in Laramie, called the Albany County Land Co., and it has purchased 600,000 acres, with the expressed intention of parceling out the land in small lots to actual settlers, not a few of whom are already upon it. Still another company is being formed, composed largely of present occupants, for the purchase of a large tract south of Albany County, in Colorado."

**Wabash, St. Louis & Pacific.**—Holders of Toledo, Peoria & Western bonds are requested to call at the office of Moran Bros., No. 68 William street, New York, to take prompt measures to protect their interests. The road is leased to the Wabash Company at a rental of 30 per cent. of the gross earnings, the lessee guaranteeing a sufficient amount to pay the interest on the \$4,500,000 first mortgage bonds, which bear 7 per cent. interest. The lessee defaulted on the interest due July 1, and holders are now asked to sign a communication to the trustees under the mortgage requesting them to take the necessary legal measures at the earliest possible moment to enforce the rights of the bondholders. By the terms of the mortgage, which are also included in the lease, holders of \$500,000 of the bonds have a right to ask for the possession of the road in 30 days after a default in the payment of interest. The trustees have the right to take possession, or they can, if they desire, apply to the court for the appointment of a receiver. Bondholders to the amount of \$500,000 have already signed, but the trustees cannot, of course, take action to secure possession of the road until 30 days from July 1. The second mortgage bonds of this road have been largely exchanged for Wabash preferred stock, and the bonds which have been so exchanged are no longer, of course, a lien on the road. According to the plan adopted at the time the lease was made the stock and second mortgage bonds are to be exchanged for Wabash securities, that company becoming owner of the road subject only to the lien of the first mortgage.

The receivers have completed arrangements for the immediate payment in New York of the July interest on the bonds of the Chicago Division and also on other bonds whose payment was ordered by the Court.

It is said that Receiver Humphreys is preparing a plan for reorganization which will be submitted to the holders of securities at an early date.

It is said that this plan, which will shortly be submitted to the holders of securities, provides for an assessment of about \$6 per share of stock, the proceeds to be used in paying off the floating debt. To represent this assessment an issue of first-preferred stock will be made, taking precedence of the present preferred stock. It is also proposed to exchange the present general mortgage bonds for debenture or income bonds, thereby reducing the fixed charges. The plan, it is said, provides for the surrender of several of the leased branches and for the exchange of bonds of others for the second preferred stock of the Wabash Co.

**Western & Atlantic.**—The Atlanta (Ga.) *Constitution* of July 24 says: "About a month ago the Western & Atlantic Railroad made a cut of 10 per cent. in the salaries of all employees receiving over \$50 per month. The time of the employees in the shops was reduced to four days' work in the week. This is in itself quite a reduction, but it has failed, it seems, to meet the requirements of these dull times, and notification has been given of another cut to take effect from Aug. 1. The new cut is an additional 5 per cent. on salaries over \$50, making a total cut of 15 per cent. on such salaries. It is also announced that all salaries of \$50 and under will be cut 10 per cent. So far as heard from there is no grumbling on account of these reductions. All parties appear to feel that it is the best that can be done under the circumstances."

**West Jersey.**—This company makes the following statement for June and the six months ending June 30:

	June 1884.	June 1883.	Six months 1884.	Six months 1883.
Earnings.....	\$112,374	\$108,698	\$527,509	\$477,839
Expenses.....	79,365	66,517	342,296	315,294
Net earnings.....	\$33,009	\$42,181	\$185,213	\$162,545
Per cent. of exps.....	70.8	61.0	64.9	66.0

For the six months this shows an increase in gross earnings of \$49,650, or 10.4 per cent.; an increase in expenses of \$27,002, or 8.6 per cent., and a resulting gain of \$22,648, or 13.8 per cent., in net earnings.

For the six months of this year the current obligations, outside of working expenses, were \$125,576, leaving a net surplus of \$59,637, against \$48,623 for the first half of last year.

**Wheeling & Lake Erie.**—The item under this head published last week having contained some inaccuracies, it is given below with the necessary corrections made:

Suit has been begun against this company asking for the foreclosure of the first mortgage, and a receiver has been appointed in the case. Mr. M. D. Woodford, General Manager of the road, has been appointed by the Court to that position. The present suit results from the financial difficulties of Commodore Garrison, who owned nearly all the bonds and stock of the company. The road extends from Toledo, O., to Valley Junction, a distance of 157 miles, with a branch of 13 miles from Norwalk to Huron, O.; it was projected a number of years ago, but was only completed last year. The first mortgage bonds issued amount to \$2,800,000. Some work has been done on an extension from Valley Junction to Wheeling, 50 miles, of which 10 miles are about completed.

**Wyoming & Yellowstone Park.**—This company is to be organized with a capital of \$10,000,000, for the purpose of building a railroad from Cheyenne, on the Union Pacific road, northward to the Yellowstone Park. The incorporators are said to be principally English capitalists.